

GOVERNOR'S ADVISORY COUNCIL
ON RECYCLING

Agenda Minutes

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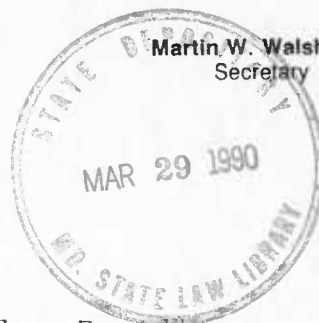
DEPARTMENT OF THE ENVIRONMENT

2500 Broening Highway, Baltimore, Maryland 21224

Area Code 301 • 631-3304

William Donald Schaefer
Governor

Martin W. Walsh, Jr.
Secretary



MEMORANDUM

TO: Members of the Governor's Advisory Council on Recycling

SUBJECT: April Meeting of the Council

The next scheduled meeting will be held on April 21, 1990 in the Conference Room in the Law Library (1st Floor) of the Court of Appeals Building located behind the Tawes State Office Building in Annapolis. A map is attached. The meeting will start at 9:00 a.m.

Attachments

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State of Maryland

GOVERNOR'S ADVISORY COUNCIL ON RECYCLING

Meeting Agenda

April 2, 1990

- 9:00 a.m. Convene, Self Introductions and Adoption of Minutes
- 9:10 a.m. Final Action on the Work Plan
- 9:15 a.m. Discussion of the State Markets Study
- (a) task group on ports
 - (b) task group on materials
 - (c) task group on counties' roles and assumptions
- 11:00 a.m. Council discussion, possible need for further task group(s) to develop recommendations on identifying, evaluating and meeting markets
- 11:15 a.m. Report of the Task Force on paper waste reduction in State offices (double-sided copying and use of lighter basis weight papers) and fostering recycling (no yellow pads, recycling of old files, using scrap paper for memo pads, and other methods of increasing recycling). Consideration of final recommendations.
Michael Gagliardo
- 11:45 a.m. Old Business
plans for state-of-the-art seminar for Council members
- 11:55 a.m. New Business
- 12:00 noon Adjournment

GOVERNOR'S ADVISORY COUNCIL ON RECYCLING

March 5, 1990

MDA - ANNAPOLIS

NAME

REPRESENTING

WILLIAM CHICCA
DAN MORHAIM
LARRY HAYWARD
John W. Schaffer
William Amstrong
Barry Scher
Ron Nelson
REGINA McNEILL
Jim Kato
RICHARD SICKELLS
George G. Perdikakis
Michael Gushard
GEORGE ADDINET
HALVY ALTER
GERALD WINEHEAD
MICHAEL PELZAR
Virginia Lipscomb
Caroline Reame
HENRY S. MINISTILL, JR.
Chip MacLeod
HELEN WANNING

MDE - COUNCIL STAFF
GENERAL PUBLIC

Amoco Corp.

MACC

Procter & Gamble

MAFDA

MDE

MML

MBWA

STATE OF THE GOVERNOR'S

M.E.S.

U.S. Forest Authority

Wheaton

Public

STATE SENATE

ENVIRONMENT

MDE

Wagner Resource Group, Inc.

FOOD SERVICE

MACO

(GBB) GERSHMAN BRICKNER & BRATTON, L

Minutes of the Meeting of
The Governor's Advisory Council on Recycling

Date: March 5, 1990
Time: 9:00 a.m.
Place: Maryland Department of Agriculture Conference Room
Annapolis, Maryland

Dr. Harvey Alter, Chairman of the Council, opened the meeting at 9:10 a.m. The minutes of the February 5, 1990 meeting were approved as written. The attendance sheet is appended to these minutes.

Dr. Alter reported on a number of miscellaneous items.

- Information on the State's used oil recycling program has been put together by Mr. George Perdikakis, Director of the Maryland Environmental Service (MES).
- The April 4 teleconference on recycling, sponsored by Keep America Beautiful, will originate at the Chamber of Commerce TV station. George Washington University has a satellite downlink. Attendance at the Chamber of Commerce station will be limited. The conference is available to anyone with downlink access.

After discussion, the Council agreed that it would be useful to learn more about techniques and processes for recycling. The focus should be on new technology and not be too basic in nature. Dr. Alter and Mr. Ronald Nelson, Maryland Department of the Environment (MDE), agreed to confer on an education program for the Council.

Mr. Perdikakis reported that MES has finalized the list of recommended grantees to receive the \$500,000 available under the Solid Waste Loan Act. Further, MES has prepared and periodically updates the Maryland Recycling Directory, which is available. MES has applied to the Able Foundation for a \$250,000 grant to expand and improve the oil recycling program.

Mr. Perdikakis and Mr. Nelson agreed to gather information on current recycling programs and efforts. Dr. Alter indicated that he has a copy of a law review article (80 pages long) which details what each State is doing in the area of recycling. The article is available to Council members who wish to review it.

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The Governor's Advisory Council on Recycling

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The draft workplan was discussed. It was agreed that:

- The issue of coordination of State and local efforts needed to be added to the workplan.
- A plan to disseminate information needs to be developed.
- It would be useful for the Council to review several of the recycling plans once they are submitted to MDE. A synopsis of the county plans would also be beneficial.
- The counties and the State should strive to recycle the maximum amount practical, and not simply target the amount mandated in the Maryland Recycling Act.

Dr. Alter stated that he would redraft the workplan and distribute it to Council members for review, with any response due back to him before the April meeting. A new workplan would then be developed.

Ms. Helen Wanning, of Gershman, Brickner & Bratton, Inc. (GBB), briefed the Council on the report, Maryland Recyclable Materials Market Study, prepared for the Governor and the General Assembly as required by the 1988 Maryland Recycling Act. The report was prepared for MDE in cooperation with MES using \$150,000 in funds provided by MES. The report examines manufacturers in the area as well as import and export markets. Three tiers of ports are considered. The report is somewhat flawed in that the U.S. Department of Commerce changed the data base, and in so doing, lost certain information that would have been of use in the report. The report projects both supply and demand up until the year 2000. A number of issues were raised:

- In comparing supply to total tonnages, GBB exercised judgement in estimating how much would be available for recycling;
- The assumptions used in the mathematical modeling need to be clearly stated; and
- The projects of available tonnages for certain wastes need to be re-examined. The estimated 252,000 tons of old newspaper (ONP) projected for 1995 appears to be too high, while the one million projected tires appears too low. Four million tires have previously been estimated.

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Dr. Alter stated that the Council should assess the report considering international aspects, the materials discussion and balance, and the database description and assumptions. Three Task Groups were appointed as follows:

1. International Aspects (ports, export markets)
Mr. George Hudnet
Mr. Ronald Nelson
Dr. Michael Pelczar
2. Materials
Mr. George Perdikakis
Mr. Lawrence Hayward
Mr. Lenny Minutillo
Senator Gerald Winegrad
3. Report Database and Assumptions
Mr. John Schafer
Mr. Barry Scher
Dr. Dan Morhaim

Mr. Perdikakis reported that several Maryland companies have expressed interest in establishing an ONP export operation using Baltimore Harbor. Up to \$10/ton for ONP has been offered if a minimum of 2,000 tons are available on 25 days notice.

One company offers to post a performance bond for three years, offering \$10/ton for a minimum of 18,000 tons to a maximum of 100,000 tons annually.

Dr. Alter offered that MES should counter offer with \$10/ton or 80% of the yellow sheet value. This would allow for cyclic market fluctuations.

Mr. Michael Gagliardo, NEMWDA, reported on the Task Group assigned to evaluate office recycling. The report recommends preparation of "How To" manuals targeted to State agencies, local government, and small businesses. A "camera ready" version would be produced that could then be customized by a potential user.

During the discussion on the report, the following issues were identified:

- There are too many players in the recycling effort. There needs to be a clear leader and better coordination.
- MDE is the proper lead agency as directed by the 1988 Maryland Recycling Act. MDE is a regulatory agency that should set policy and give direction and serve as

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- MES assists in implementing programs with counties, regions, and other jurisdictions.
- The State must set an example for the other jurisdiction to emulate.

Dr. Alter indicated that it was clear that the Council concluded that a manual was needed and remanded the report back to committee for reconsideration and revision based upon the Council's comments.

Under old business, Mr. Nelson reported on the feasibility of holding regional meetings as an effort to ensure public participation, education, and outreach. Mr. Nelson indicated that the logistics of holding regional meetings is no problem, but that the Council must first decide what is to be accomplished by such an effort and then structure the effort to satisfy that directive. After discussion, it was decided to hold the issue in abeyance for future consideration.

The topic of the deinking mill and a potential site in Maryland was discussed. The issued is still under consideration by Southeast Paper Company. The matter is to be brought up to management in late March. Preliminary financial calculations are not favorable due to current low selling price of newsprint and high construction costs.

Senator Winegrad reported on pending legislation. The newspaper recycling bill passed from the Environmental Matters Committee with amendments adjusting the percentage recycled and the time schedule for compliance. The second reader passed and the third reader will be considered soon. The bill has not yet been brought up in the Senate.

Senators Winegrad and Smelser have jointly sponsored a bill to require double-sided copying for documents longer than ten pages. It appears that Senate passage is assured. Significant cost savings would be realized.

Senator Wagner's bill on State Recycling Centers is scheduled to be considered by Committee on March 14th.

Under new business, it was agreed that future meetings would continue to be held in the Annapolis area on the first Monday of each month. The April meeting will be at the Court of Appeals Building in Annapolis in the conference room in the Law Library, on April 2, 1990 starting at 9:00 a.m.

There being no other business, the meeting was adjourned at 12:05 p.m.



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DEPARTMENT OF THE ENVIRONMENT

2500 Broening Highway, Baltimore, Maryland 21224
Area Code 301 • 631- 3318

William Donald Schaefer
Governor

Martin W. Walsh, Jr.
Secretary

MEMORANDUM

TO: Members of the Governor's Advisory Council on Recycling

THRU: Ronald Nelson, ^{NS} Director
Hazardous and Solid Waste Management Administration

FROM: William Chicca, Administrator *WChicca*
Solid Waste Program

SUBJECT: May Meeting of the Council

The next scheduled meeting of the Governor's Advisory Council on Recycling will be held on Monday, May 7, 1990 at 9:00 a.m.

The location of the meeting will be the conference room of the Maryland Municipal League, which is located at 1212 West Street, Annapolis, Maryland. A map is enclosed.

GOVERNOR'S ADVISORY COUNCIL ON RECYCLING

Subcommittee on Import/Export




Meeting held on March 26, 1990, at 2500 Broening Highway, Baltimore, MD. In attendance were Messrs. Ron Nelson, Michael Pelczar and George Hudnet. Mr. Harry Benson, the new State of Maryland Recycling Coordinator, also attended.

It was decided that this one-time meeting was going to evolve into several meetings in order to adequately address the charge of the group. We collectively decided to hold a meeting(s) with commodity brokers to evaluate the supply/demand for recyclables especially waste papers and tires in the over seas market place. We feel that we need to discover:

- what do current and future markets look like,
- how can we develop the export market out of the Port of Baltimore,
- how does the brokerage process work,
- how are the products transported/packaged, and
- what kinds of incentives are needed.

It was decided that our group should develop a working knowledge of the Baltimore port and find out what kind of "carrot" could be offered to attract trade in the area prior to our meeting with the brokers.

H. Benson and G. Hudnet are developing the list of brokers and end users as a starting point for the group.


George Hudnet

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State of Maryland

GOVERNOR'S ADVISORY COUNCIL ON RECYCLING

Meeting Agenda

May 7, 1990



- 9:00 a.m. Convene, Self Introductions and Adoption of Minutes
- 9:10 a.m. The Role of Secondary Material Brokers in Recycling:
presentation by *Mr. Scott Horne*, Prince Georges Scrap Co.
regarding paper, metals, glass and plastics (with opportunities for
questions and answers). Discussion of possible recommendations.
- 9:45: a.m. Further Discussion of the State Markets Study.
(a) task group on ports
(b) task group on materials
(c) task group on counties' roles and assumptions
- 10:05 a.m. Council discussion, possible need for further task group(s) to develop
recommendations on identifying, evaluating and meeting markets.
Discussion of possible recommendation concerning this report to the
Governor.
- 11:00 a.m. Report of the Task Force on Guidelines for paper waste reduction,
recycling and secondary materials procurement by public and private
sector. Consideration of final text and recommendations.
Michael Gagliardo
- 11:30 a.m. Beginnings of Discussion: Replacement of Packaging and Waste
Reduction in the State.
- 11:45 a.m. Old Business
plans for state-of-the-art seminar for Council members.
- 11:50 a.m. New Business (dates for future meetings).
- 12:00 noon Adjournment.

Minutes of the Meeting of
The Governor's Advisory Council on Recycling

Date: Monday, April 2, 1990
Time: 9:00 a.m.
Place: Law Library Conference Room
Court of Appeals Building
Annapolis, Maryland

Dr. Harvey Alter, Chairman of the Council, convened the meeting at 9:15 a.m. The Work Plan, a letter from Gershman, Brickner & Bratton, Inc. (GBB) on the Recyclable Materials Market Study (GBB report), and an article from Resource Recovery Magazine was distributed.

Mr. George Hudnet reported on his subcommittee actions concerning the GBB report section on Import/Export of Materials. A copy of the report is appended to these minutes. Mr. Harry Benson and Mr. Hudnet will develop a list of brokers and end users for Council use.

Mr. Ronald Nelson stated that once all the comments on the GBB report are in, the Department will finalize any changes in an addendum to the report which will be distributed.

Dr. Alter indicated this report is the beginning of a more comprehensive effort that will build upon this base. It moves the State out of the spot market and into considering long-term contractual recycling efforts. Efforts are needed to keep the information current, such as a computer data base that would get continuous feedback from the counties.

Mr. George Perdikakis reported that he had met with a Senior Vice President of Southeast Paper. They have a copy of the report and the Maryland Recycling Directory. They are interested in doing "something" in Maryland but need large tonnages on a reliable basis. Southeast Paper exported 70,000 tons of ONP last year. Some of this material went out via Baltimore Harbor. This year they have internally consumed all ONP and have not exported any. The company has not made a decision on a deinking plant. Sites in five States, including Maryland, have been identified. This appears not to offer any short-term solution.

Suburban Insulation in Hagerstown, Maryland is ready to purchase 450 tons of ONP monthly.

Mr. Nelson stated that a regional effort should concentrate on rural areas. The "major seven" counties are too independent. However, it is difficult to get rural governments to interact. They will not regionalize until it is clearly shown to be to their advantage. Mandatory efforts will not work.

Mr. Perdikakis reported on his subcommittee work -materials. The tires section of the GBB report will be rewritten after meeting with a consultant and others. This should be completed within 30-45 days. The glass section has minor problems and the plastics section needs more work to highlight PolySource and Procter & Gamble's efforts on plastics recycling.

Mr. Barry Scher reported on his subcommittee - Data and Assumptions. The subcommittee concluded that regional marketing would benefit rural counties and that assistance should be available. Participation should be on a voluntary basis.

Dr. Alter stressed that markets must be available and identified before materials are recovered.

Mr. Nelson indicated that County Recycling Plans will not be deemed adequate unless they identify specific long-term markets for each of the recovered materials.

Dr. Alter indicated that the State needs a more aggressive effort to site an ONP deinking facility, possibly coupled with a power plant that uses tire derived fuel (TDF) to provide steam and electricity. Mr. Nelson agreed to make arrangements to have a representative from the Department of Economic and Employment Development at the next Council meeting to discuss siting efforts on secondary market plants. Because of the highly confidential nature of such industrial negotiations, the discussion would have to be general in nature.

Mr. Michael Gagliardo presented his subcommittee report (attached) on office recycling and waste reduction. It includes three generic guides:

- Buying Recycled Products;
- Office Recycling; and
- Waste Audits and Waste Reduction.

These guides and the report could be distributed to the Governor's office, counties and municipalities, and possibly to the private sector. It could be made available on disk (IBM compatible software). The members of the Council were requested to review the report and return comments to Mr. Gagliardo as soon as possible. After the May meeting, a draft advisory with the document will be sent to the Governor.

Dr. Alter advised the members that the Work Plan has been finalized. Two items that need to be addressed are:

- 1) Maximizing public participation; and
- 2) Waste reduction/packaging.

The question remains as to how to increase public participation. How can people best be informed and/or reminded of the need and importance of recycling. Experience demonstrates that people will participate if they know that their participation contributes and that recycling works. The caveat is that it must be simple and convenient. Different approaches are required in urban as opposed to rural areas. Socio-economic factors are also important. Investment in high-participation areas will provide the best return.

Integration of environmental issues, including recycling, in education curriculum is needed. Mr. Benson agreed to look into education programs and report to the Council. Curriculum packages from Rhode Island and Virginia are currently available. It is imperative that local leaders be recruited to "hype" the recycling efforts across the State. Examples would include the Governor, Chief Executive Officers of counties, Mayors, sports figures, etc.

Dr. Alter reported on the waste reduction issue. He has a series of graphs that will be distributed. The data does not support the position that package replacement is a significant issue. The amount of material used in packaging (on a per unit basis) has actually decreased over the past few years as lighter materials are used, such as shrink plastic films.

Dr. Alter also reported that the future trend in recycling appears to be towards front and processing - high tech separation. This achieves the highest recovery rates.

It was reported that Babcock & Wilson has purchased National Ecology and that the Texas RDF facility will cease operations after July. Baltimore Gas & Electric ceased accepting RDF due to problems with air heaters at the Crane Power Plant.

It was agreed that future meetings would continue in the Annapolis area even after the close of the legislative session.

There being no other business, the meeting was adjourned at 12:05 p.m.

4/2/90

Meeting of The Governor's Advisory Council on Recycling

LAW LIBRARY CONF. RM.
COURTS OF APPEAL Bldg
ANNAPOLIS, MD

4/2/90

NAME

WILLIAM E. CHICCA

HARRY R. BENSON

RON NELSON

BILL RUNYAN

GEORGE G. PERDIKAKIS

BILL BURROUGHS

MICHAEL PELCZAR

RICK SHECKELLS

MICHAEL TYLER

MICHAEL GAGLIARDE

BARRY F. SCHER

JIM KATCEL

GEORGE HUDNET

TOM REDMOND

HARVEY ALPER

CHIP MACLEOD

JOAN PITKIN

Representing

MDE - HSWMA

MDE Waste Minimization Prog

MDE - HSWMA

TALBOT COUNTY

M.E.S.

Procter & Gamble

Public - ENV.

DIRECTOR - MD CONSERVATION PROGRAM

M.E.S.

Northeast Authority

MID-ATLANTIC FOOD DEALERS

MD Beer Wholesalers Assoc

Wheelabrator Tech

Automotive Recycling Ind

Rusvic

MAGE

House of Delegates

April 2, 1990

PLAN OF WORK 1990

State of Maryland

Governor's Advisory Council on Recycling

1.0 Introduction

This plan presents the work schedule adopted by the Council to address the recycling questions assigned by Governor William Donald Schaefer and other points the Council wishes to include. The schedule is for 1990. An amended plan will be adopted for 1991 later this year.

There are three categories of questions or tasks the Council is undertaking: (1) the Governor's assignment; (2) some short term subjects that will demonstrate the State's leadership by reducing the amount of waste discarded by State executive and legislative branch offices and improve recycling; and (3) long term goals and strategies for increasing and improving recycling in Maryland. The Governor's assignment (contained in the Executive Order creating the Council) encompasses the pressing problems likely to be encountered during start-up of any recycling program.

Many of the tasks are inter-related so that the Council can not assign independent priorities to them. Some tasks cannot be addressed until the counties¹ submit their recycling plans to the Department of the Environment (The plans are due by July 1, 1990.)

This Work Plan discusses the tasks from the Governor and those added by the Council. The latter are classified as short-term and long-term. All are described below. A section of the Plan describes the time schedule the Council has adopted for 1990 for many of the tasks.

An important high priority task is omitted from the Work Plan discussion, at present. This task is to establish base-lines from which progress in recycling can be measured. There are no generally accepted models for computing waste composition, recycling potentials, nor the level of activity needed to meet the State's mandated recycling goals. There should be standardized baselines of quantity and composition of municipal solid waste (MSW) for urban, suburban and rural areas. Even if these are not exact, everyone should be counting from the same base. Better statistics are needed on just how much MSW is generated in the State, which is different from the total amount of solid waste going to disposal. The approach to this task will be planned (and may displace some other tasks on the schedule) after the counties submit their recycling plans. It is expected that some or all of the information needed will be included in the plans.

1. References to counties in this plan include Baltimore City.

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Another omission is the consideration of new recycling initiatives. The Council will consider these as part of all other assignments and when new initiatives are proposed by Council members or others.

2.0 Organization and Method of Operation of the Council

The Council will address the Governor's assignments concurrently with other tasks. To do this, small working groups or Task Forces will be organized for each task. When a Task Force finishes its report to the entire Council, the members will be available for other assignments.

The Council seeks input from all sectors across the State: public, private, citizens -- anyone who has something to contribute. The Council wishes to develop a broad consensus on what has to be done. Inquiries and discussions have begun to learn what the State, counties and the private sector are doing or plan to do to increase recycling in Maryland. Invitations will be issued by the Council, and through its representatives of the various public and private sectors, for recommendations and suggestions.

The public must be informed of progress. This will be coordinated through the Governor's office.

3.0 The Governor's Assignments

3.1 *Coordinate State Efforts to Facilitate Implementation of Recycling Goals at the State and County Levels:* This task must be considered by itself and in conjunction with all other assignments. The Council as adopted a continuing function to monitor recycling activities around the State. Staff has been asked to prepare periodic summaries of these activities, which will be made available widely. The Council's present consideration of tasks in paragraphs 4.1.1 and 4.1.2 are an initial effort to increase coordination among State offices and agencies, including the General Assembly.

3.2 *Identify & Evaluate Markets:* Most markets for recovered materials are strong; some are not likely to be satiated in the foreseeable future. The markets for office and computer papers, steel or aluminum cans, PET and HDPE plastics, and to an extent glass, are strong.¹ (The caveat for glass is because of the freight costs for the relatively low value product. Many parts of Maryland are close to glass plants.) Conventional wisdom is to worry because markets for old newsprint (ONP), tires, batteries, mixed papers and compost are weak. There is never likely to be a strong market for mixed papers for good technological reasons. Compost is a soil adjuvant, not a nutrient, and never has had high value anywhere in the world. Its selling price is low or negative, a situation unlikely to change. The limitations on the markets for discarded tires and batteries are different and will be addressed in part as part of two of the long-term tasks.

1. A caution is needed here. The steel industry is assisting finding markets for steel cans but there is a surplus of scrap steel from other sources. Cans and some other grades of scrap steel compete for uses.

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All over the country, people involved in recycling try to "identify" markets but do not often extend their vision to issues of marketing and specifications. Other factors that must be addressed in this context are the pricing mechanisms (guarding against upside and downside fluctuations), stability, interstate/intrastate competition and export opportunities.

It is important to recommend to the counties what is in the literature on markets and marketing. The recently completed State "market study" will be the starting point for discussions. The Council also will address the possibility of a centralized marketing function for recovered products.

The counties will likely be bidding against each other for available markets. There would be a great duplication of effort as each county attempts to establish a marketing function. The learning curve will be steep, expensive and time consuming. What merit would there be for the State to create a centralized function and sell all recovered materials as if from one source? Rather than have the State establish and maintain this new function, and recognizing that marketing and selling of products is not something the public sector does well, what are the merits of having the private sector market the recovered materials? This could be by public bid by recognized brokers and dealers. An incentive could be built-in by paying a percentage commission on sales rather than a fee. (At start-up, there could be a fixed-fee plus percentage to account for the fixed costs of start-up.) A private, established broker could conceivably better distribute the products from county programs in national and world markets, blending with traditional materials as necessary.

3.3 Need to Expand/Construct Recycling Centers: What constitutes a recycling center -- as opposed to a Materials Recovery Facility (MRF)? Which are needed, where? Some processing of separately collected materials is necessary in order to meet buyers' specifications. The State must be covered by a collection network feeding to aggregation centers (collection and transfer points) and there to MRFs for processing and to benefit from economies of scale. The collection quantities and locations are related to the nodes of waste generation and must accommodate rural and urban communities. This description lends it self to an operations research analysis for siting aggregation centers and MRFs and for achieving efficient regionalization. Some study is needed but this cannot be determined until the counties submit their recycling plans.

The operations research approach must include estimates of future quantities and grades of recyclable materials. For example, projections today show that the amounts of steel and glass packaging in MSW are dropping sharply. (So is paper packaging, which is not recyclable.) Plastics packaging is growing, but at a lower rate than other materials are dropping. How much will there be to recycle? Which housing densities will permit economical collection? Siting of MRFs and aggregation centers will be opposed (NIMBY). What can the State do to lessen NIMBY?

Are drop-off centers a way of expanding recycling? Some research shows that such centers have the lowest rate of participation. However, drop-off centers may be the only practical collection method in rural counties because they are compatible with current waste collection practices. Again, the counties' recycling plans must be submitted before this subject can be addressed.

3.4 Development of Rules & Regulations for Recycling: Two sets of rules will be needed: one for participants (starting with householders and small businesses) and another for processors and handlers of recycled materials. For the former, should there be a penalty for nonparticipation?

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Should there be a penalty for the wrong materials? Should the State specify the types of containers? Who should determine the materials to be separated?

For the processors and handlers, will a State permit be required? Are there any new public health issues? Should there be any restrictions on where the materials to be recycled come from? If a MRF or aggregation center is operated by a county, should the permitting be any different than for the private sector? Are new laws needed regarding scavenging? Are regulations needed to protect public health?

What rules are needed to administer the State recycling law? How do we assure that all counties are keeping track of recycling percentages the same way? How do we ascertain that their recycling plans are comparable?

Will rules or regulations be required to specify which materials are to be recycled? At present, counties are planning to meet the mandated goals, which are based on weight. As a result, there is a natural tendency to ignore light weight materials, such as plastic containers. These containers make up only about two percent of MSW but there is a market for them. Will other materials be ignored if, for example, the mandated targets can be reached by recycling say yard waste?

3.5 Programs to Maximize Participation: If household source separation is required, should it be enforced? Is this a proper role for the police? Should enforcement be different for homeowners, businesses or government offices? Should counties be required to include specified materials in their plans, similar to some other states?

Can public information programs, which are essential in any case, be substituted for enforcement? Who should conduct them? (If government does, they are often ineffective, underfunded, and short-lived as legislatures scrutinize budgets.) What are appropriate measures of success: numbers of participants or quantities collected? Which methods of separation/collection and which containers receive the highest acceptance? What is the relationship between participation and demographics? (There are some data indicating higher participation correlates with higher education/income.) How do we achieve participation in high density dwelling units -- especially given health and fire regulations? What will be the participation at drop-off centers? How should recycling be conducted in low density rural areas? In areas without organized collection, should the residents be *de facto* excused from the recycling programs?

3.6 Ways to Maximize State Procurement of Recycled Materials: Given the present state of markets, should the State do anything? If they did, which products would be affected beyond certain grades of paper? How do you specify and differentiate between the use of secondary materials and secondary materials recovered from wastes destined for disposal. (Most products contain some secondary material.) Should the State adopt the Federal RCRA regulations here? Should they offer a higher price (say +10%)? What would it buy? For tires, what is involved in specifying road pavement with rubber-asphalt? How much more would it cost? What assurances can there be that any purchased product would assist Maryland markets?

It is unlikely that State procurement could generate much of a market for recycled materials (with the possible exception of paper, presuming specifications are clear to include post-consumer

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stocks). However, should the State take actions with symbolic value to lead the way? If so, which actions would make sense in their own right and not just add cost?

3.7 Evaluate Programs for Waste Reduction: Any discussion of waste reduction must begin with recognition that the amount of waste generated *per capita* is not increasing; the fraction of packaging residues in MSW has gone down since 1972; metal and glass packaging weights have decreased over the years; packaging reduces the amount of food residues in MSW; all forms of packaging are decreasing except plastics, which is increasing slightly and has the greatest effect in reducing the amount of MSW.

What can the State do in its own operations to reduce waste? The Council started in February to address using double-sided copying and lighter weight bond papers in State offices. How much waste reduction would this accomplish?

Can the State take any other waste reduction steps without being contrary to interstate commerce? Should the State educate people so that they can make waste reducing decisions? (For example, a large waste reducing consumer decision would be to use plastic grocery bags instead of paper, other considerations of trade-offs aside.)

3.8 Economic Feasibility of Recycling Programs: The first step is to properly define "avoided cost," the popular budget "item" for financing recycling. Too often, it has been taken to mean the avoided disposal (or tip) fee. Rather, it is the avoided marginal cost of disposal, often much less than the tip fee. Economic feasibility will be better understood when jurisdictions are on a true user fee basis.

The literature is not clear as to the costs of separate collection of recyclable materials. Some time-motion studies have been done but they can be criticized. More and better data are needed. Everyone could use an economic decision model. Should the State develop one?

3.9 Cost/Benefit of Packaging Replacements: The Council must start with consideration of paragraph 3.6. Add to that the finding that foamed polystyrene packaging (the common target of such proposals) occupies 0.2% or so of landfills and the subject seems absurd. Similar proposals around the country cannot be supported by the data. There are trade-offs and anyone dictating package design is likely to slow the technological advances that reduce waste.

Given all of this, do we do nothing or should there be a information program such as mentioned in paragraph 3.6? How do we examine the trade-offs of waste and package replacements, let alone the health and environment factors?

4.0 Additional Points the Council Wishes to Consider

4.1 Short-Term Tasks

4.1.1 Recycling in State Offices: Can we increase office recycling of newspapers and office papers? How much paper will be recycled this way? What investments will have to be made? How can glass, aluminum, and possibly other materials be included? How can this recycling be

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coordinated with the counties so that the State and counties do not work at cross purposes? How will federal facilities be included?

4.1.2 Waste Reduction in State Offices: An often overlooked waste management technique is to reduce the amount of paper being deposited in office waste baskets. Also overlooked is that since 1960, books and magazines and office wastes have grown as a portion of the waste stream. However, office waste is less than 3% of MSW. (By contrast, newspapers have been about 6.8% on average since 1960.) The amount of office waste can be reduced by using double-sided copying and lighter weight bond papers. How much waste reduction would this accomplish? How much would it cost to phase in double-sided office copiers?

4.2 Long-Term Tasks

4.2.1 Markets for ONP and Tires: The markets for most materials likely to be recovered from MSW are strong except for a few materials. Two outstanding exceptions are old newsprint (ONP) and discarded tires. The markets for these two might be integrated. Many firms are now investigating new de-inking mills for ONP. Should the State do what it can (e.g., through its economic development program) to attract one of these mills? Further, these mills are large users of steam and power that could be generated by captive power plants burning coal and tires. Discussions have already started between the State and possible owner-operators of ONP de-inking mills. Predictions are that in about three to four years, new mills will be on-line and the market for ONP will be strong. If so, does the State have to do anything?

4.2.2 Lead-Acid Storage Batteries: The third material for which markets are poor are old lead-acid storage batteries. There is no shortage of demand for the lead, nor for the polypropylene cases. The barrier appears to be siting, given the future Superfund liability of an operator. The situation could get worse with passage of new Federal legislation. A bill recently introduced in Congress would require sellers of batteries, at all levels, to take back old ones. Something will have to be done with the batteries. What can the State do to attract a battery recycler? Perhaps just leasing the land for a plant and holding the lease holder harmless for future Superfund liability would be enough. (These plants are subject to RCRA Subtitle C corrective action so it is unlikely there would be any environmental insult.) Hold harmless may not be important environmentally; it may be essential to attract a plant. What is involved? Batteries from Maryland would have to be first in the queue for the recycling plant.

4.2.3 Advancing MRF Technology: Recycling programs will require the building and operation of materials recycling facilities (MRFs) to prepare separated products for markets. The products as-collected do not meet buyers' specifications. Current MRFs are labor intensive, with little mechanical processing. OSHA and related state agencies apparently have not taken a close look at these operations, which too often are built on shoe strings and present risks to workers. Picking garbage is not pleasant work. The future prospects for hiring laborers for this type of work are poor given current demographics of the work force, short of large future immigration. What can the State do to encourage new technology and capital--, rather than labor--intensive separations? Is a model regional MRF a way? Should the State pay for the design of a modern MRF and make this available to the counties? Should this be extended to building the first one, and thus demonstrating the technology in the State? Can this be accomplished by a full service operator (which is the way

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modern waste-to-energy plants have been built and successfully operated). Should the State encourage a regional MRF to lead the way? If so, what would be the best way of doing this, short of funding the entire design and construction, even operation?

4.2.4 Overlooked Wastes: There are some large quantity, homogeneous wastes that are often overlooked when discussing recycling programs: old license plates, last year's telephone books, and the asphalt paving or roofing from demolition. Old license plates probably do not amount to much waste disposed, but the aluminum is valuable. Should the Motor Vehicle Administration require citizens to return voided plates? How can we organize to avoid old telephone directories from being sent to landfills? Judging from current I-270 construction, there is some asphalt recycling in Maryland. What of other road demolition wastes? What happens to old roofing wastes? Which other wastes are being overlooked?

5.0 Ongoing Tasks

5.1 Introduction: Some tasks are considerations that must be included in discussion of all other tasks. In addition to paragraph 3.1, three others are described below.

5.2 Informing the Public as to Progress: The Council has an obligation to keep the public informed about what its deliberations, including open meetings and opportunities for public outreach. The Council reports to the Governor who will be consulted as how best to inform the public.

5.3 Recommendations of New State Initiatives: Paragraphs 4.2.1 and 4.2.2 are for new State initiatives. Throughout the Council's deliberations, it must be sensitive to other initiatives.

5.3 Education: The Council has to address what can be done within the education system to teach a waste management ethic. There are school curricula for K-12 and perhaps the State can encourage their use. There is little related course work in colleges and universities. Should the Maryland universities and colleges be encouraged to develop undergraduate and post-graduate courses in the field?

6.0 The Schedule for 1990

Two charts are appended. The first presents a schedule for addressing the eight of the tasks assigned by the Governor. (Task 3.1 pervades all other considerations, so is not listed separately on the chart.) The second is a schedule for addressing some of the points proposed by the Council. Note that tasks from each category will be addressed concurrently.

The Charts show three types of activities: discussion by the full Council, assignments for Council Task Forces, and Recommendations formulation. Not all tasks have the three types of activities during 1990. This is because either there is not enough time or because the tasks cannot be addressed until some other information is available, such as the county recycling plans.

No schedules for beyond 1990 have been formulated. Probably, some of the tasks planned for 1990 will not be completed and will carry over. In all likelihood, the Council will want to address additional tasks in subsequent years. These schedules will have to be updated periodically.

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Some aspects of the schedules need to be highlighted. Note that economic feasibility cannot be fully addressed until the county plans have been submitted. Maximizing State procurement is scheduled for the end of 1990 because this subject can wait compared to others that will more directly influence implementation of the county plans. Consideration of recycling and waste reduction in State offices has begun, so these subjects are scheduled early. Discussion of advancing MRF technology is left until the end of 1990; much has to be learned about the subject before meaningful discussions can be held.

The schedules are ambitious and subject to change.

Governor's Advisory Council on Recycling

Schedule of Assigned Tasks

1990

Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.

Identify & Evaluate Markets

Economic Feasibility

Maximize Public Participation

Rules & Regulations

Expand/Construct Centers

Replacement of Packaging

Waste Reduction

Maximize State Procurement



G900219b, Feb. 1990

Governor's Advisory Council on Recycling

Schedule of Short & Long Term Tasks

1990

Jan. Feb. Mar. Apr. May June July Aug. Sept. Oct. Nov. Dec.

Recycling in State Offices

Waste Reduction in Offices

Markets for ONP & Tires

Lead-acid Batteries

Advancing MRF Technology



March 14, 1990

Dr. Harvey Alter, Chairman
GOVERNOR'S ADVISORY COUNCIL ON RECYCLING
10 Watchwater Way
Rockville, Maryland 20850

Dear Dr. Alter:

Thank you for the opportunity to discuss the methodology and findings of the Maryland Recyclable Materials Market Study. The report contains much data to be digested and the briefing on March 5 was a good means to introduce members of the Advisory Council to the report's contents.

To answer two of the questions asked at the March 5 session:

- (1) Regarding the 8-month import/export Department of Commerce data: The 8-month data was annualized in order to provide the tonnages expected for base year 1990.
- (2) The Research Division of the Port Authority of Norfolk was contacted to determine if its waste paper exports were containerized or in bulk shipments. According to Philip Newswanger, Director of Research, old newspaper exports are baled for bulky shipments as well as containerized loads. He didn't have further details as to the proportions for each type of shipment, except to state that the Port of Norfolk as a whole ships about 3/4 of its exports containerized and the remainder in bulk loads. Used office paper shipments out of the Port are all containerized.

When I asked Mr. Newswanger why waste paper exports are increasing in Norfolk, rather than through Baltimore, he confirmed what other sources stated to us: the time factor involved in traveling up Chesapeake Bay to get to Baltimore adds costs to the shipper. Despite the cost of land transport to get wastepaper to Norfolk, the overall cost to export the paper is currently less if Norfolk and other neighboring ports are used.

- (3) Regarding the data on tires, we are not totally pleased with the indicated findings either. No one really knows

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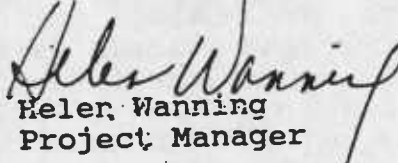
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the exact amount of used tires there are currently, let alone how many will be discarded five and ten years from now. The request that we derive the supply of tires that could be a part of municipal solid waste has some built-in statistical disadvantages. The amount was calculated in tons rather than numbers of tires because MSW records are usually by weight. Demand statistics from some end users were by number, however.

Supply tonnages also had to exclude estimates of truck tires and other types which have market value as retreads. On the demand side, the study based demand solely on reported end-user capacity. Responses from retreaders, crumb rubber producers, and other end users in the study area indicate the capacity to recycle the supply of passenger tires is there, but is not expanding due to the lower value of retreaded passenger tires coupled with the diminished domestic and export market for crumb rubber fuel. The network for used passenger tires also appears to be less defined than for other types of tires. A separate task force research effort for tires would be appropriate for Maryland to address.

Please call me if you or members of the Advisory Council need further information or clarification regarding the findings of the study. I enjoyed meeting you and look forward to further contact regarding Maryland's recycling activities.

Sincerely,


Heler Wanning
Project Manager

HW:jcs

cc: Harvey Gershman
Frank Bernheisel
George Perdikakis

Date: 04/01/90
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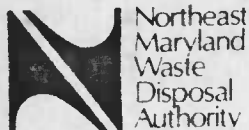
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MEMO TO: Members of Governor's Advisory Council on Recycling
FROM: Task Force on Recycling and Waste Reduction in the Office
SUBJECT: Task Force Recommendations
DATE: April 2, 1990

Based on the discussion at the last Council meeting, the Task Force on Recycling and Waste Reduction in the Office (consisting of Michael Gagliardo and Senator Gerald Winegrad, assisted by Northeast Authority staff member, Richard Keller) finalized the following three documents:

Guide to Buying Recycled Products;
Guide to Office Recycling; and
Guide to Waste Audits and Waste Reduction.

The Task Force proposes that the guides be sent to the Governor with the recommendation from the Council that the Governor direct agencies involved in recycling, the Department of the Environment, Maryland Environmental Service, and the Northeast Authority, distribute the guides to County and Municipal Recycling Coordinators and businesses across the state. The guides would serve as a technical assistance piece to assist local governments and businesses in establishing recycling programs in offices. Each agency can work with the recycling coordinators to "tailor" the guide to local situations by including specific contact persons, logos, etc.

Establishing recycling and waste reduction programs in offices is important to any comprehensive recycling program. Buying recycled products for office use is an important component of stimulating markets for recyclables. Most local governments are or will soon be recycling in their offices and will be looking for ways to encourage businesses to do the same. These guides can be a very effective educational tool for local governments and businesses across the state. The guides do not specify the "nuts and bolts" of establishing recycling and waste reduction programs. Instead, they serve to stimulate consideration of the important aspects of any program which can determine the success or failure of such an effort.

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GUIDE TO BUYING RECYCLED PRODUCTS

OVERVIEW

The homeless garbage barge demonstrated the severity of our solid waste problem. Each year, however, Marylanders must deal with the equivalent of over 1,800 barge loads (about 6 million tons). Further, the number of Maryland landfills declined from 125 in 1978 to 41 in 1988; 22 of these will close within 2 years.

The Maryland Recycling Law, enacted in 1988, established goals of 20% recycling in the seven largest counties and 15% in the smaller counties by 1994. While the goals of the law are laudable, they will not succeed unless markets for recyclable materials are sufficient to handle the increased volumes.

Recycling involves three distinct steps: collection, manufacturing and use. (These steps are represented by the three arrows in the traditional recycling symbol.) The three elements must be in balance if we are to fully realize recycling's potential for waste management, energy conservation, and resource conservation. Merely collecting recyclables is not recycling. Recycling does not occur until a product made from recycled materials is actually used by a final consumer.

According to the National Institute of Governmental Purchasing, government purchases represent 20 - 21 % of GNP (7% - 8% federal, 12% - 13% state and local). Governments also have an important role in influencing private purchases, both through leadership by example and through their standards and specifications. Thus, government can influence private groups, from non-profits to Fortune 500 companies, to use recycled products.

In the National Policy on Recycling, the National Recycling Coalition supports Maximum Enforcement of Procurement Laws:

"The National Recycling Coalition recommends the maximum enforcement of existing laws which require the procurement by governmental agencies of materials and supplies made from recycled materials. The National Recycling Coalition recommends the immediate establishment and enforcement of recycled product procurement requirements at all levels of government. "

Under the recommendation for a National Policy on Recycling Education, the Coalition recommends a "Buy Recycled Program":

"The National Recycling Coalition strongly encourages consumers to purchase durable, reusable, and recyclable goods. The program would emphasize the environmental advantages of recyclable consumer goods".

The Coalition has recently adopted a more detailed policy on government procurement. This is included as Attachment 1.

EXISTING PROGRAMS

At the federal level, Section 6002 of the Resource Conservation and Recovery Act, as amended, requires purchasing programs for recycled products by federal agencies, and by state and local agencies and contractors using appropriated federal funds. The U.S. Environmental Protection Agency (EPA) has published five guidelines (paper and paper products, re-refined oil, retread tires, building insulation products and cement and concrete made with fly ash). The guidelines include guidance on specifications, minimum content standards and recommendations on establishing a procurement program. EPA is also examining the feasibility of guidelines for building and construction materials, rubber products, asphalt rubber and yard waste compost.

At the state and local level, the National Recycling Coalition has identified 36 states, the District of Columbia and 14 local governments that favor recycled products. The 36 states and the District of Columbia represent approximately 214 million Americans, or about 88% of the U.S. population.

In Maryland the current law requires 40% of the State's paper purchases to be recycled paper (defined as paper containing 80% post-consumer waste). The law also requires state agencies to develop a plan to increase their purchases of recycled products. Legislation pending in the General Assembly would require regulations to establish a 5% price preference for recycled products. The Senate version would also allow the state to use the EPA percentages if paper with 80% post-consumer content is unavailable. (NOTE: TO BE UPDATED AFTER THE SESSION ENDS.)

KEY ELEMENTS IN BUYING RECYCLED PRODUCTS

Governments, businesses and non-profits should establish programs to buy recycled products.

In order to establish a good program for buying recycled products, organizations should include the following elements:

1. Commitment to buy - organizations must establish a policy to buy recycled products. This commitment is necessary to provide leadership to users and to convince manufacturers that a consistent, long-term demand exists so that they can invest in recycling equipment.
2. Review purchasing specifications - all specifications must be reviewed to eliminate prohibitions or limitations on against recycled products, such as virgin only requirements or prohibitions on using recycled materials. In addition, more subtle obstacles to purchasing recycled products, such as brightness levels for paper, must be identified and revised.
3. Common definitions and percentages - organizations should use existing minimum content standards and definitions, such as those established by the U.S. EPA or the Northeast Recycling Council. Manufacturers cannot supply different products to the 50 states, 83,166 local governments, and thousands of private organizations. By making one product, manufacturers can

produce shelf items instead of specialty items, lowering the cost of production.

4. Variety of products - even though paper makes up the largest percentage of the waste stream, buying recycled paper alone will not solve the solid waste problem. Organizations should consider buying a variety of recycled products, including but not limited to, paper, oil, plastics, auto parts, compost, aggregate, insulation, solvents and rubber products. Organizations should also consider recycling services such as tire retreading or oil recycling.

5. Testing products - organizations should test recycled products to determine how they work on certain equipment and for particular end uses. Tests should be done "blind" so that recycled and virgin products can be compared without bias.

6. Phased-in approach - organizations should phase-in use of recycled products so that users can adjust to the program and manufacturers can make long-term capital investments to retool equipment to accept recycled materials.

7. Price incentives - recycled products may be more expensive than virgin products due to tax policies, price fluctuations, or economies of scale in production or end use. Organizations should use price preferences (of 5% - 10%), life-cycle costing, or use of set-asides where recycled products are purchased separately. Any extra funds spent should be viewed as an investment in market development, the same as collection equipment, materials recycling facilities, trucks and other costs of collecting recyclables.

8. Cooperation between solid waste and purchasing officials - both solid waste and purchasing officials have expertise and experience which should be used to develop an effective program for buying recycled products.

9. Cooperation among manufacturers, vendors and users - organizations must actively solicit bids from manufacturers and vendors of recycled products, and widely publicize the bids. Manufacturers and vendors must provide a wide range of recycled products and let users know about the products.

10. Cooperative purchasing - organizations should join together to buy recycled products. These cooperative purchases expand the volume of products purchased, reduce unit costs of recycled products, help ensure availability, and establish common definitions and percentages. States and local governments can establish regional programs; non-profits and community group can buy together, and businesses can establish joint programs.

11. Data - organizations should keep good records on buying recycled products and share this information with others.

12. Waste reduction and recyclability - in addition to buying recycled products, organizations should buy recyclable products and buy fewer and more durable products.

13. Market development - procurement strategies alone will not be sufficient to create markets. Governments must establish a market development strategy to create or expand markets for recyclables. In addition to procurement, the strategy can include identifying existing users of recycled material, and incentives for new and existing businesses such as tax credits, siting and zoning assistance, loans and grants.

CONCLUSION

Market forces are not sufficient to create adequate demand for recyclable materials. Buying recycled products is an important way to ensure that demand exists for recyclable materials. It is an important strategy to expand recycling as we head for the 21st century.

Sources of Additional Information and Technical Assistance

| <u>Source</u> | <u>Assistance</u> |
|--|--|
| Local Recycling Coordinator | Technical Assistance |
| Local Solid Waste Department | Technical Assistance |
| Local Purchasing Department | Technical Assistance |
| Northeast Maryland Waste Disposal Authority 25 South Charles Street, Suite 2105 Baltimore, Maryland 21201-3330 (301) 333-2730 | Technical Assistance, Information on suppliers- recycled products |
| Maryland Environmental Service 2020 Industrial Drive Annapolis, Maryland 21401 (301) 974-7254 (800) 492-9188 | Maryland Recycling Directory Technical Assistance |
| Maryland Department of the Environment Office of Waste Minimization and Recycling 2500 Broening Highway Baltimore, Maryland 21224 (301) 631-3315 | Technical Assistance |
| U.S. E.P.A. Recycled Guideline Hotline c/o EH Pechan and Associates 5537 Hempstead Way Springfield, Virginia 22151 (703) 941-4452 | Information on federal procurement guidelines, Lists of recycled product suppliers |

National Recycling Coalition
1101 30th Street, N.W.
Suite 305
Washington, D.C. 20007
(202) 625-6406

Recycled Product Guide
American Recycling Market, Inc.
P.O. Box 577
Ogdensburg, New York 13669
(800) 267-0707

Peer Match Program (technical
assistance, up to 50% of
travel cost for advisor)

Quarterly publication
(\$195/yr) listing of recycled
products

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GOVERNMENT PROCUREMENT PRACTICES

WHEREAS, the availability of markets for recycled products is essential to the success of recycling and is a key element of any comprehensive approach to solid waste management and material and energy conservation; and

WHEREAS, state and local governments represent a significant percentage of the Gross National Product and therefore, can have a significant effect on the demand for secondary materials by purchasing and using recycled products; and

WHEREAS, state and local agencies can influence private purchase of recycled products by setting an example through their purchases, testing products, and establishing standards and specifications which can be replicated by private agencies; and

WHEREAS, states and local governments, representing over 88% of the U.S. population, have established laws favoring purchases of recycled products; and

WHEREAS, the federal government, whose purchases represent 7-8 % of GNP, is implementing Section 6002 of the Resource Conservation and Recovery Act, which requires agencies using federal funds to favor recycled products; and

WHEREAS, recycled products are generally competitive with virgin products in price and quality and are becoming more available as more manufacturers and vendors enter the marketplace and the supply as secondary materials increases dramatically; and

WHEREAS, by working together, states and local governments can increase the use of recycled products,

NOW, THEREFORE BE IT RESOLVED, that the National Recycling Coalition recommends that public and private agencies and organizations establish programs to favor purchases of recycled products, including:

- o legislative, executive and administrative commitment to buying recycled products;
- o using standard specifications, definitions and minimum content standards (such as those established by the U.S. Environmental Protection Agency under RCRA or the Northeast Regional Council) to allow manufacturers to make a standard product and reduce unit costs;
- o eliminating prohibitions or limitations against recycled products and including recovered material content in bid specifications;

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- o cooperative purchasing programs among states, local governments, regional authorities and private organizations to increase the volume of purchases and decrease unit costs;
- o providing incentives, as needed, for buying recycled products (including price preferences and life-cycle costing);
- o cooperation between vendors and users to ensure that vendors can sell recycled products and users are aware of recycled products on the market;
- o keeping good records on the recycled purchasing program to publicize the efforts and share information with other users;
- o buying a variety of recycled products, including products for which EPA guidelines have been established (paper, oil, tires, building insulation, concrete); products including materials being collected for recycling; products from the Official Recycled Product Guide; other products, including but not limited to, plastic, auto parts, compost aggregate, asphalt, solvents, rubber and construction materials.

GUIDE TO OFFICE RECYCLING

According to studies prepared for the United States Environmental Protection Agency, paper makes up nearly 40% of the waste stream (after recycling). In a typical office, about 75% of the waste is recyclable paper (such as white and colored office paper, computer print-out, tab cards, newsprint and corrugated), which can be recycled into new products.

The American Paper Institute has recently recommended a 40% recycling rate by 1995. An important part of achieving the goal will be collecting clean, source separated paper. Therefore, it is critical that public and private agencies establish office recycling programs.

While this guide is specific to wastepaper (as the largest component of office generated solid waste), the same principles apply to recycling other office wastes such as metal and glass containers and cardboard.

Office recycling provides the following benefits:

- * generates revenue from the sale of recyclable materials;
- * reduces the amount of waste landfilled;
- * conserves energy;
- * provides raw material for new products;
- * often saves on disposal costs
- * helps Maryland Counties reach their recycling goals.

Office managers should follow these steps to establish an office wastepaper recycling program:

1. Discuss the program with potential markets. Look in the phone book under wastepaper dealers, or contact the resources listed at the end of this report. It is important that you establish a contract with a reputable wastepaper dealer.
2. Get the support of upper level management. Once you know that a market exists for your paper, ensure that the program has the support of the chief executive and the other key policy makers of your organization. This will help gain maximum participation for the program.
3. Determine the number of people who will participate, and the types and amounts of paper that will be generated. A good rule of thumb is that each employee will generate approximately one-third to one half pound of paper per day. The selection of paper to be recycled will depend on market conditions and the types of paper being used in your office.

It is critical that the highest possible grade of paper be collected. Avoid collecting mixed paper for recycling. While mixed paper has the advantage of removing the largest volume from the wastestream, it has a much lower dollar

value than separated paper, and will not help the long-term goal of providing wastepaper needed by mills to make high quality printing, writing and tissue and towel products.

You may also wish to start your program with a small demonstration project to identify and correct potential problems before involving all employees in the program.

4. Determine how employees will separate their recyclable paper from other wastes. The most common methods are the desk-top collection container, the second trash can, and central collection areas. Separation is important to avoid contamination, which reduces the dollar value of the paper. Each collection receptacle should include a recycling logo or other clear identifier, and should list items acceptable and unacceptable for recycling.
 5. Decide how paper will be collected and stored. Most systems use central boxes where employees place separated paper. The employees place the paper in the containers when leaving the building for lunch, meetings or at the end of the day. The boxes are then collected by janitorial or mail personnel, and placed in a central area for shipment to a paper dealer. The boxes should be clearly identified as recycling containers to avoid contamination.
 6. Develop a cost-benefit analysis for the program. Determine whether you or the wastepaper dealer will pay for such items as the desk-top units or other collection devices, the cost of boxes and pallets, and the cost of training. Determine the approximate value of the paper and estimated savings on disposal costs, including transportation, (if any) to estimate the net cost or savings from the program.
 7. Negotiate a good contract with a wastepaper dealer. The contract should include which costs are borne by the dealer and which are your responsibility, grades to be collected, the method of pricing the paper, how the paper will be weighed, how often it will be collected, the allowable level of contaminants and outthrows, and the method of payment.
- Prices for wastepaper will fluctuate due to changes in market conditions. These price fluctuations must be considered in developing the contract and cost-benefit analysis.
8. Coordinate your collection program with your purchases. Buy only those products which can be recycled in your program. Avoid items such as yellow legal pads, glossy papers, window envelopes, sticky labels and other contaminants.
 9. Establish a coordinator for the program. The coordinator will work with the wastepaper dealer and employees to ensure smooth program implementation. Depending on the size of the program, it may be useful to have area monitors to assist the program coordinator in keeping participation rates up and contamination levels down.
 10. Make sure all employees are properly trained. The program will only succeed if every employee, from the chief executive to the lowest paid

employee, understand the importance of recycling and are motivated to participate. A well publicized kickoff meeting, with a 15-20 minute training session (including program need, goals, collection methods, and acceptable and unacceptable items) is critical. Training must continue even after the program begins (with frequent reminders to employees). New employees should be trained as part of the regular orientation program.

11. Publicize the success of the program. This will encourage increased participation and enthusiasm, and provide good information to convince other organizations to establish similar efforts.

Conclusion

Maryland Counties will not meet their recycling goals without office recycling programs. These programs can help reduce the strain on local landfills.

Sources of additional information and technical assistance:

| <u>Source</u> | <u>Assistance</u> |
|--|---|
| Local Recycling Coordinator | Technical Assistance |
| Local Solid Waste Department | Technical Assistance |
| Local Purchasing Department | Technical Assistance |
| Northeast Maryland Waste Disposal Authority 25 South Charles Street Suite 2105 Baltimore, Maryland 21201-3330 (301) 333-2730 | Technical Assistance |
| Maryland Environmental Service 2020 Industrial Drive Annapolis, Maryland 21401 (301) 974-7254 (800) 492-9188 | Maryland Recycling Directory (markets) Technical Assistance |
| Maryland Department of the Environment Office of Waste Minimization and Recycling 2500 Broening Highway Baltimore, Maryland 21224 (301) 631-3315 | Technical Assistance Market Survey |

U.S. EPA
Solid Waste Information
401 M Street, S.W.
Washington, D.C. 20460
(800) 424-9346

National Recycling Coalition
1101 30th Street, N.W.
Suite 305
Washington, D.C. 20007
(202) 625-6406

Institute of Scrap Recycling Industries
1627 K Street, N.W.
Washington, D.C. 20006
(202) 466-4050

Mill Trade Journal
South 105 Fairview Avenue
Paramus, New Jersey 07652
(201) 368-1225

Fiber Market News
4012 Bridge Avenue
Cleveland, Ohio 44113
(216) 961-4130

Technical Assistance

Peer Match Program
(technical assistance, up to
50% of travel cost for
advisor)

PS-90 (\$10)-specifications
for various wastepaper grades,
Information on paper dealers

Wastepaper Prices

Wastepaper Prices

1055.RK

GUIDE TO WASTE AUDITS AND WASTE REDUCTION

Waste generated in the home typically represents only about one-half of a community's total waste stream. Businesses and public and private institutions (such as schools and government facilities) produce the other half of a community's total waste stream. Therefore, in order for Counties to meet the State's recycling goals, businesses must participate in recycling programs, including waste reduction.

Waste reduction is defined as any action to keep materials out of the waste stream. In addition to recycling, it includes:

- * using supplies and equipment more efficiently;
- * replacing disposable materials with reusable and recyclable materials; and
- * buying products and equipment that are durable, easily repaired and/or recyclable.

Waste reduction is the most environmentally benign form of waste management. Unlike recycling or virgin production, there is no need to process or transport materials. Thus, the amount of energy and raw material used is reduced. The less waste produced, the less waste requiring proper disposal. This saves money for governments and businesses.

Waste Audit

A waste audit will help identify areas where waste can be reduced. The audit identifies raw materials being used, waste composition, recyclable materials, and areas where waste can be reduced.

A successful waste audit should include the following elements:

- * naming a program coordinator and establishing program coordinators to conduct the waste audit, get employees involved, track the progress of the program and troubleshoot;
- * developing waste reduction goals;
- * conducting a visual survey of materials in the trash;
- * touring the facility to identify types and quantities of waste generated;
- * reviewing purchasing practices;
- * identifying waste reduction opportunities.

Once the audit is complete, the waste reduction program must be implemented. This includes:

- * establishing a waste reduction and recycling policy (see Sample as Attachment 1);
- * publicizing the program;
- * training staff;
- * implementing the recommendations and publicizing the results;
- * evaluating and revising the program.

A waste audit should be conducted at least once a year to ensure that the program is complete and up-to-date. The remainder of this report will focus on techniques to reduce waste generation.

Reducing Paper Waste

According to an EPA report, paper and paperboard represent the largest percentage of material discarded into the municipal waste stream, about 38% in 1990. Recyclable paper also represents about 75% of office waste. How can paper waste be reduced? Listed below are some of the techniques:

- * Use dual-sided copying whenever possible. Dual-sided copying can save up to 50% in paper purchases, reduce the need for new filing cabinets and file space, reduce mailing costs, and allow smaller mailing envelopes to be used;
- * Establish centralized filing systems to reduce the number of copies of documents;
- * Use obsolete material for drafts and memo pads. If no sensitive material is involved, the paper can be donated as drawing paper to child-care or similar facilities;
- * Reuse interoffice envelopes, file folders, and corrugated boxes;
- * Eliminate needless forms; and
- * Use central bulletin boards, the telephone, and staff meetings instead of sending memos.

Many organizations measure success by the length of their mailing list. Organizations need to exchange information, but there are ways to reduce waste in mailing:

- * Reduce mailing and distribution lists and reevaluate quantities needed for reports and publications;
- * Share documents with other staff or other agencies;

- * Remove your name from mailing lists for materials you no longer need or share with others; and
- * Use electronic or computer mail.

Government and businesses can buy paper products that can be recycled in office wastepaper recycling systems. Switching to white ledger and white legal pads will increase the value of waste paper. You can replace plastic-window envelopes, which are rarely recyclable, with open-window envelopes. Mailing labels and other sticky products should be water soluble to permit recycling. Reports should be printed on nonglossy paper to allow any excess material to be recycled. These techniques can improve the dollar value of the wastepaper by eliminating contaminants and improving the grade of the paper. It may convince paper mills to increase production of recycled paper by offering clean, quality wastepaper.

The purchasing division should work closely with the records-management division on wastepaper recycling. The records-management division disposes of material after it remains in storage for a required number of years. They work with local recyclers and know which paper can be recycled profitably and which contaminants (glues, carbon paper, etc.) reduce the value of paper. Purchasing officials should use the information to design forms that are more recyclable.

Inventory Control

Public and private agencies should establish sophisticated, computerized inventory control on the products they buy. An agency may want to buy a product that it or another agency already has in inventory; the inventory control can prevent this wasteful duplication. Agencies also can share materials and buy products in bulk quantities which reduce unit costs and generally require less packaging.

Purchasing officials should cooperate in the inventory system with the salvage bureau. Salvage officials know what products can be reused or recycled. They can inform agencies of available products and suggest products for purchasing that are easier to recycle. The salvage bureau can sell or donate usable equipment to other agencies, governments, citizens (through auctions), rebuilders and recyclers, and nonprofits.

Influencing Manufacturers

Agencies can use their purchasing power and specifications to convince manufacturers to reduce waste volume and toxicity. A specification for packaging (for boxes or egg cartons) could specify the use of recyclable paperboard or prohibit the use of plastic packaging. This can convince manufacturers to change packaging or develop new recycling systems. The government can require printers to avoid inks which contain toxic metals such as lead or cadmium. They can require that manufacturers of batteries or similar products accept used ones for rebuilding or recycling before the government will buy new products.

Remanufacturing

Over five hundred U.S. firms are involved in remanufacturing, an industrial activity that collects discarded or nonfunctioning durable products, disassembles and refurbishes reusable parts, replaces other parts, and reassembles the parts into usable products. Examples of products that can be remanufactured include vehicles, vehicle parts, transformers, vending machines, retread tires, respliced computer paper, compressors, telephones, and many others. Organizations can buy remanufactured products and keep bulky items out of landfills.

Other Waste Reduction Techniques

Governments and businesses have other methods of reducing waste, including:

- * Using life-cycle costing formulas which include product life and disposal costs to encourage recyclable, reusable, and durable products;
- * Replacing paper napkins and tablecloths with washable linens;
- * Substituting washable tableware for plastic knives and forks, paper plates, and styrofoam cups in institutional kitchens and cafeterias;
- * Buying cloth instead of disposable diapers;
- * Buying reusable pallets;
- * Buying cloth towels or hand warmers instead of paper towels;
- * Buying reusable wiping cloths; and
- * Using backhauling, where the vehicle making a shipment of finished products takes recyclable materials back to the manufacturer instead of returning empty.

Conclusion

Maryland Counties will not achieve the required recycling goals without participation by government and industry. By establishing waste reduction practices, fewer waste materials will be generated and more materials can be recycled. This can help reduce the strain on local waste disposal facilities.

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DRAFT

POLICY ON WASTE REDUCTION AND RECYCLING

The Northeast Maryland Waste Disposal Authority was created to assist its Participating Subdivisions and the private sector in providing efficient collection and disposal of waste on a regional basis, in compliance with State and federal laws, regulations and policies. Facilities and programs of the Authority should, to the extent practicable, provide for the generation of energy and recovery of useable resources from waste. The Authority is assisting its Participating Subdivisions in developing comprehensive waste management programs which include waste reduction, recycling/reuse, energy recovery and landfilling.

In order to promote this comprehensive approach to waste management, the Authority will seek to maximize waste reduction, materials reuse and recycling in its operation. To implement this policy the Authority will, to the extent practicable:

1. purchase durable products, such as mugs and refillable pens, rather than disposable products for the office;
2. use two-sided copies for all mailings;
3. use recycled paper meeting, at a minimum, EPA guidelines, for all stationary, newsletters, copy paper, pads, business cards, and computer paper, where possible. A message to that effect will be stated on the paper;

4. use no inks containing toxic components for any Authority publication;
5. purchase and use recyclable paper for the office and no yellow pads, pink message pads, or other paper will be used unless they can be recycled;
6. use the back side of paper for scratch pads and first drafts;
7. minimize the use of glued labels for mailings;
8. use single copies with routing slips within the office rather than multiple copies of memos;
9. recycle paper, metal and glass;
10. use durable rather than disposable tableware for meals and snacks, and will provide collection points for recyclable goods generated in quantity at such functions;
11. include a statement in all appropriate publications for goods and services that the Authority prefers doing business with companies that adhere to these principles, and that any proposals submitted to the Authority should be printed two-sided on recycled and recyclable paper with removable, or reusable bindings or staples;
12. require that any consultant producing reports for the Authority will use recycled paper;

- 61032100
13. urge all staff and consultants to implement the above practices and follow the principles of waste reduction and materials reuse and recycling.

At least once during each Fiscal Year the Executive Director will report to the Authority Members the status of actions related to the above policy and practices.

4. use no inks containing toxic components for any Authority publication;
5. purchase and use recyclable paper for the office and no yellow pads, pink message pads, or other paper will be used unless they can be recycled;
6. use the back side of paper for scratch pads and first drafts;
7. minimize the use of glued labels for mailings;
8. use single copies with routing slips within the office rather than multiple copies of memos;
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10. use durable rather than disposable tableware for meals and snacks, and will provide collection points for recyclable goods generated in quantity at such functions;
11. include a statement in all appropriate publications for goods and services that the Authority prefers doing business with companies that adhere to these principles, and that any proposals submitted to the Authority should be printed two-sided on recycled and recyclable paper with removable, or reusable bindings or staples;
12. require that any consultant producing reports for the Authority will use recycled paper;

13. urge all staff and consultants to implement the above practices and follow the principles of waste reduction and materials reuse and recycling.

At least once during each Fiscal Year the Executive Director will report to the Authority Members the status of actions related to the above policy and practices.

Dr. Alter pointed out that good networks exist for ferrous, aluminum, glass, paper (computer and ledger), corrugated, and old newspaper. Markets and networks for plastics are developing. Tires remain a problem. Education is needed to get offices and businesses into programs to recover computer and ledger paper, for which excellent markets exist.

Metal and bi-metal cans have fairly stable markets. The market for white goods has improved since the PCB capacitor problem was resolved.

The importance of marketing vs. markets needs to be emphasized. Markets must come first, before the recovery effort starts.

The question was posed: should the Council recommend Statewide coordinated brokering of separated materials using a private broker? It was concluded that counties would resist participation in any kind of mandatory program, but would appreciate assistance when and where their individual efforts fail. A cooperative approach in regions like Western Maryland or the mid-shore have been proposed.

Dr. Alter advised that the Council should not attempt to perform a detailed assessment of the GBB Recyclable Materials Market Study. Instead, the Council must examine markets and address marketing.

Dr. Dan Morhaim stated that the Council should concentrate efforts on current available markets. The experience at his hospital with competitive bidding for the hospital's waste netted \$100,000 in revenue.

Senator Gerald Winegrad indicated that an office was needed to act as a point of contact or clearinghouse for dissemination of information on recycling. An active on-line continually updated system is needed.

Mr. Harry Benson advised the Council that the Office of Waste Minimization and Recycling (OWMR) serves that function. Training for recycling coordinators is planned. Large counties have abundant staff. Prince George's County has 22 people on recycling programs, Montgomery County has six or seven. OWMR is widely disseminating the name and telephone number of the county recycling coordinators.

Dr. Alter asked for formation of three task groups to formulate recommendations: What should OWMR do or be doing? Mr. Ronald Nelson and Mr. Michael Taylor were assigned to formulate a response from the State perspective.

Mr. Lenny Minutillo, Mr. Jim Katchef, and Mr. Larry Hayward would do the same from a private sector perspective.

Delegates John Schafer and Regina McNeill would prepare a report from the County/Municipal perspective.

Mr. Richard Keller, representing Mr. Michael Gagliardo and NEMWDA presented an updated report on guidelines. Three guidelines have been prepared:

1. A Guide to Buying Recycled Products;
2. A Guide to Office Recycling; and
3. A Guide to Waste Audits and Waste Reduction.

The guides will be distributed to members who are to report to Mr. Gagliardo or Mr. Keller. Comments are requested in two weeks so a recommendation to the Governor can be developed at the next Council meeting.

Dr. Alter emphasized the importance of sustaining interest and momentum in the recycling program. The end goal is behavior modification. Continued interest and participation by local leaders is critical.

Dr. Alter indicated future meeting topics would include:

- A presentation on packaging and waste reduction;
- A roundtable discussion on recycling; and
- A slide presentation on a materials recovery facility (MRF).

He also handed out material from Keep America Beautiful (KAB) on the subject of degradable plastics.

There was nothing new to report on the Southeast Paper Company's decision relative to constructing a de-inking facility.

Efforts to develop an education curriculum on recycling were discussed. KAB has 11 such curriculum documents developed in various States. Ms. Elizabeth Seilor is the KAB contact person. The Maryland Department of the Environment has two such programs, one developed in Virginia, the other in Washington State.

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The April 4th KAB solid waste seminar was a success. The program was available via 147 satellite downlinks which reached an audience of over 14,000. Mr. Barry Scher of Giant Foods, Inc. has offered to duplicate the tape for distribution to members. The tape runs 1:51:30.

Mr. Minutillo reported a new telephone number, (301) 343-1183 (FAX 301-298-0299).

Future meetings will be held at the Maryland Municipal League. Future dates are June 4, July 9, August 6, September 10, October 1, November 5, and December 3.

There being no other business, the meeting was adjourned at 11:45 a.m.

GOVERNOR'S ADVISORY COUNCIL
ON RECYCLING

MAY 7, 1990

Maryland Municipal League
Annapolis, Md 21401

| <u>NAME</u> | <u>Representing</u> |
|-------------------------------------|---------------------------------|
| William E. Chica | Md Dept. of Env't. HSWMA |
| Harry Benson | MDE Office Waste Min and Recycl |
| Richard Keller (for Mike Gagliardo) | NEMWDA |
| MICHAEL TAYLOR | MES |
| Ron Nelson | MDE |
| John W. Schaffer | MACO |
| Jim Ratzel | MBWA |
| HARRY HAYWARD | Amoco Corp |
| HARVEY ALTER | U S CITAMEN |
| DAN MOKHAIM | GENERAL PUBLIC |
| REGINA McNEILL | MD MUNICIPAL LEAGUE |
| TOM REDMOND | Automotive Recycling Ind. |
| Jim Trouba (for Mike Pelczar) | Queen Anne's County |
| Gerald Winegrad | State Senate |
| Chip MacLeod | MACO |
| SCOTT HORNE | P.G. Co. SCRAP Co. |
| Lenny D. Minutillo, Jr. | Food & Beverage |

PO Box 626
College Park, Md.

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State of Maryland

GOVERNOR'S ADVISORY COUNCIL ON RECYCLING

Meeting Agenda

June 4, 1990

Meeting at the Maryland Municipal League
1212 West Street, Annapolis



- | | |
|------------|---|
| 9:00 a.m. | Convene, Self Introductions and Adoption of Minutes Presentation on Materials Recovery Facilities (MRFs) Mr. Matthew Coz, N.E. CRINC, Billerica, MA (N.E. CRINC has been selected for the MRF in Montgomery Co.) |
| 10:00 a.m. | Discussion of Report to the Governor on the Markets Study Discussion of Report to the Governor on the Recycling Papers and of final text. |
| 10:15 a.m. | Discussion of Establishing a Markets and Marketing Database State Interests - Ron Nelson City and County Interests - Regina McNeil Private Sector Interests - Tom Redmond |
| 10:45 a.m. | Beginnings of Discussion: Replacement of Packaging and Waste Reduction in the State. |
| 11:45 a.m. | Old Business Staff report on pending Executive Orders |
| 12:00 noon | Adjournment. |

State of Maryland, Governor's Task Force on Recycling
Membership Roster
Dr. Harvey Alter, Chairman

Dr. Harvey Alter
Manager, Resources Policy Dept.
U.S. Chamber of Commerce
1615 H Street, N.W.
Washington, D.C. 20062
PH: 202-463-5531
FAX: 202-887-3445
REPRESENTS: General Public

Mr. Michael A. Gagliardo
Executive Director
N.W. MD Waste Disposal Author.
25 S. Charles Street
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PH: 301-333-2730
FAX: 301-333-2721
REPRESENTS: N.E. MD Waste Disposal Authority

Mr. Lawrence J. Hayward
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REPRESENTS: Packaging Industry

Mr. Paul Hollinger
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FAX:
REPRESENTS:

Date: 06/21/90

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State of Maryland, Governor's Task Force on Recycling
Membership Roster
Dr. Harvey Alter, Chairman

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FAX: 301-684-3345
REPRESENTS: Solid Waste Industry

Mr. James F. Katcef
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2404 A & Eagle Blvd.
Annapolis, Maryland 21401
PH: 301-224-2391
FAX: 301-224-2399
REPRESENTS: Food & Beverage Industry

Hon. Regina J. McNeill
Councilwoman
Town of Berwyn Heights
6303 Pontiac Street
Berwyn Heights, Maryland 20740
PH: 301-953-9660
FAX: 301-206-5239
REPRESENTS: Maryland Municipal League

Date: 06/21/90

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Dr. Harvey Alter, Chairman**

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Date: 06/21/90

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State of Maryland, Governor's Task Force on Recycling
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REPRESENTS: Maryland Environmental Service

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Delegate
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REPRESENTS: Maryland House of Delegates

Mr. Thomas W. Redmond Sr.
8224 Baltimore Annapolis Blvd.
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REPRESENTS: Recycling Industry

Hon. John W. Schafer
Councilman
Harford County Council
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Bel Air, Maryland 21014
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FAX:

REPRESENTS: Maryland Association of Counties

Date: 06/21/90

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State of Maryland, Governor's Task Force on Recycling
Membership Roster
Dr. Harvey Alter, Chairman

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Vice President, Public Affairs
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FAX: 301-341-5825

REPRESENTS: Maryland Food Dealers Association

Hon. Gerald W. Winegrad
Senator
Maryland State Senate
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Senate Office Building
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PH: 301-841-3578
FAX:

REPRESENTS: Maryland State Senate

State of Maryland
Governor's Advisory Council on Recycling

June 22, 1990



Hon. William Donald Schaefer
Governor, State of Maryland
State House
Annapolis, Maryland 21401

Dear Governor Schaefer:

Your Executive Order establishing the Advisory Council on Recycling asked the Council to address specific questions concerning recycling and solid waste management. I am pleased to report that the Council has completed several sub-tasks on some of these questions. This letter is our progress report and recommendations on the sub-tasks completed to date.

The first task defined in your Executive Order is to recommend means to coordinate State efforts to facilitate implementation of recycling goals at the State and county levels. Please recall from our Work Plan that the Council considers this a continuing function. Our first report on this function is to recommend to you the enclosed texts of three papers: *Guide to Waste Audits for Waste Reduction and Recycling*, *Guide to Buying Recycled Products*, and *Guide to Office Recycling*. These were prepared by the Council with the assistance of the Northeast Maryland Waste Disposal Authority.

It is our recommendation that your office bring these to the attention of the General Assembly, counties, municipalities, all State offices and the private sector. You may wish to have your office, or an appropriate State agency, publish and distribute these Guides, or otherwise emphasize to State agencies that they adopt the teachings of the Guides. The leadership of the General Assembly may wish to adopt the Guides in the administration of their office functions. The private sector will benefit from the Guides. Indeed, the Maryland Chamber of Commerce has offered to distribute and publicize the Guides as means of increasing recycling in the State.

Another of the tasks assigned by your Executive Order is for the Council to identify and evaluate markets for recycled materials. As a first step, the Council has reviewed the report to the Department of the Environment, *Maryland Recyclable Materials Markets Study*, submitted in January to Secretary Walsh. We find the report a useful first start. It illustrates that markets are dynamic and that a single study cannot fully define markets. Work must continue and the report updated from time to time. Now that an overall view of potential markets has been established, and it has been illustrated that the markets for many potentially recoverable materials are supply -- not

demand -- limited, that the State focus periodic attention on marketing and mechanisms to assure recoverable materials meet specifications. To these ends, the Council plans periodically to return to the issue of markets. We understand that the Department of the Environment and the Maryland Environmental Service will be reporting jointly to you soon on the markets consultant's report. Representatives of both organizations participated in the Council's discussion of this report.

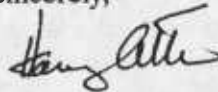
As an additional step toward establishing and maintaining markets, the Council has been discussing the scope of a possible database and management information system for the State to assist the public and private sectors to market recovered materials. We shall report to you on our recommendations on this topic in the near future.

The Council has addressed the ideas of State offices using double-sided copying and lighter basis weight papers as means of waste reduction. We have been informed that you are considering an Executive Order to this effect. We commend to you issuance of such an Executive Order at the earliest possible time so that State offices can make the necessary transitions. Both double-sided copying and using the lightest basis weight papers possible should reduce costs, as well as waste, for Maryland.

The Council is proceeding with its Work Plan and is holding close to the ambitious schedule it established. Recent discussions began to address the pros and cons of packaging restrictions as a waste reduction measure. The counties' recycling plans are due July 1, which will trigger the Council addressing several of the assignments for the Council. We have established a monthly meeting schedule and are holding to it.

We have taken the liberty of initiating this sort of interim report of activities and recommendations to you and trust it meets your needs. The Council would appreciate learning if this method of communication meets your interim needs and objectives.

Sincerely,



Harvey Alter, Chairman
10 Watchwater Way
Rockville, Maryland 20850

cc: Hon. Martin Walsh
Mr. Mark Wasserman
Mr. David Carroll
Members of the Council
w/Encl.

State of Maryland
GOVERNOR'S ADVISORY COUNCIL ON RECYCLING

Meeting Agenda

July 9, 1990

Meeting at the Maryland Municipal League
1212 West Street, Annapolis

NOTE: Meeting is on Second Monday of the Month!

| | |
|------------|---|
| 9:00 a.m. | Discussion of Approaches to Recycling |
| 10:00 a.m. | Further Discussion of Establishing a Markets and Marketing Database State Interests - Ronald Nelson City and County Interests - Regina McNeil Private Sector Interests - Tom Redmond |
| 10:30 a.m. | Continuing Discussion: Replacement of Packaging and Waste Reduction in the State. Bans, Taxes, and Deposits. |
| 11:50 a.m. | Old Business |
| 12:00 Noon | Adjournment. |

GUIDE TO OFFICE RECYCLING

According to studies prepared for the United States Environmental Protection Agency, paper makes up nearly 40% of the municipal solid waste stream (after recycling). In a typical office, about 75% of the waste is recyclable paper (such as white and colored office paper, computer print-out, newsprint and corrugated), which can be recycled into new products. Office papers constitute about 10% of the total paper in the waste stream and have value as a recycled product.

The American Paper Institute has recommended a 40% recycling rate by 1995. An important part of achieving this goal will be collecting clean, source separated paper. Therefore, it is critical that public and private agencies establish office recycling programs.

While this Guide is specific to wastepaper (as the largest component of office generated solid waste), the same principles apply to recycling other office wastes such as metal and glass containers and cardboard.

Office recycling provides several benefits.

- generates revenue from the sale of recyclable materials
- reduces the amount of waste for disposal
- conserves energy
- provides raw materials for new products
- can reduce disposal costs
- helps Maryland Counties reach their recycling goals

Wastepaper Programs

Office managers should follow these steps to establish an office wastepaper recycling program:

1. *Discuss the program with potential materials buyers.* Look in the phone book under wastepaper dealers or contact the resources listed at the end of this Guide. It is important to establish a contract with reputable secondary materials users, dealers or brokers.
2. *Obtain the support of upper level management.* Once you know that a market exists for the paper, ensure that the program has the support of the chief executive and other key policy makers of your organization. This will help gain maximum participation by all concerned.
3. *Determine the number of people who will participate and the types and amounts of paper that will be generated.* A good rule of thumb is that each employee in an office generates approximately one-third to one-half pound of paper per day. The selection of paper to be recycled will depend on local market conditions and the specifications in your sales contract, both of which are determined (in part) by the types of paper being used in your office.

It is critical that the highest possible grades of paper are collected. It may not be advantageous to collect mixed paper for recycling. While doing so has the advantage of removing the largest volume from the waste stream, mixed paper has a much lower value than separated paper, and will not help the long-term goal of providing wastepaper needed by mills to make high quality printing, writing, tissue and towel products.

Start programs after a demonstration period so as to identify and correct potential problems before involving all employees in the program. A new large, ambitious program that doesn't work will diminish enthusiasm and participation.

4. *Determine how employees will separate their recyclable paper from other wastes.* The most common methods are the desk-top collection container, a second trash can, and central collection areas. Separation is important to avoid contamination, which reduces the value of the paper. Each collection receptacle should include a recycling logo or other clear identifier, and should list acceptable and unacceptable items for recycling.

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5. *Decide how paper will be collected and stored.* Most systems use central boxes where employees place separated paper. The employees place the paper in the containers when leaving the building for lunch, meetings or at the end of the day. The boxes are then collected by janitorial or other personnel and placed in a central area for shipment to a paper dealer. The boxes should be clearly identified as recycling containers to avoid contamination.

6. *Establish the cost of the program.* Determine whether you or the wastepaper dealer will pay for such items as the desk-top units or other collection devices, the cost of boxes and pallets, and the cost of training. Determine the approximate value of the paper and estimated savings on disposal costs, including transportation (if any) to estimate the net cost or savings from the program.

7. *Negotiate a firm contract with a wastepaper dealer.* The contract should include which costs are borne by the dealer and which are your responsibility, grades to be collected, the method of pricing the paper, how the paper will be weighed, how often it will be collected, the allowable level of contaminants and outthrows, and the method of payment. Prices for wastepaper fluctuate due to changes in market conditions. These price fluctuations must be considered in developing the contract and net costs. Contracts can protect both buyers and sellers against severe fluctuations by establishing a floor price when the market is down, and a discount when the market is up.

8. *Coordinate your collection program with your purchases.* Buy only those products that can be recycled. Avoid items that are excluded by your buyer's specifications. These may include yellow legal pads, glossy papers, window envelopes, sticky labels and similar contaminants.

9. *Establish a coordinator for the program.* The coordinator will work with the wastepaper buyer(s) and employees to ensure smooth program implementation. Depending on the size of the program, it may be useful to have area monitors to assist the program coordinator in keeping participation rates up and contamination levels down.

10. *Make sure that all employees are trained.* The program will succeed only if every employee, from the chief executive to the lowest paid employee, understands the importance of recycling and is motivated to participate. A well publicized kickoff meeting, with a 15-20 minute training session (including program need, goals, collection methods, and acceptable and unacceptable items) is critical. Training must continue even after the program begins (with frequent reminders to employees). New employees should be trained as part of regular orientation programs.

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11. *Publicize the success of the program.* This will encourage increased participation and enthusiasm and provide reliable information to convince other organizations to establish similar efforts.

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SOURCES OF ADDITIONAL INFORMATION AND TECHNICAL ASSISTANCE

| <u>Source</u> | <u>Assistance</u> |
|--|---|
| Local Recycling Coordinator | Technical Assistance |
| Local Solid Waste Department | Technical Assistance |
| Local Purchasing Department | Technical Assistance |
| Northeast Maryland Waste Disposal Authority 25 South Charles Street Suite 2105 Baltimore, Maryland 21201-3330 (301) 333-2730 | Technical Assistance |
| Maryland Environmental Service 2020 Industrial Drive Annapolis, Maryland 21401 (301) 974-7254 (800) 492-9188 | Maryland Recycling Directory (markets information) Technical Assistance |
| Maryland Department of the Environment Office of Waste Minimization and Recycling 2500 Broening Highway Baltimore, Maryland 21224 (301) 631-3315 | Technical Assistance Market Survey |

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**U.S. EPA
Solid Waste Information
401 M Street, S.W.
Washington, D.C. 20460
(800) 424-9346**

**National Recycling Coalition
1101 30th Street, N.W.
Suite 305
Washington, D.C. 20007
(202) 625-6406**

**Institute of Scrap Recycling Industries
1627 K Street, N.W.
grades,
Washington, D.C. 20006
(202) 466-4050**

**Mill Trade Journal
South 105 Fairview Avenue
Paramus, New Jersey 07652
(201) 368-1225**

**Fiber Market News
4012 Bridge Avenue
Cleveland, Ohio 44113
(216) 961-4130**

Technical Assistance

**Peer Match Program
(technical assistance, up to
50% of travel cost for
advisor)**

**PS-90 (\$10)-specifications
for various wastepaper**

Information on paper dealers

Wastepaper Prices

Wastepaper Prices

GUIDE TO BUYING RECYCLED PRODUCTS

The Maryland Recycling Law establishes goals of 20% recycling in the seven largest counties and 15% in the smaller counties by 1994. While the goals of the law are laudable, they will not succeed unless markets for recovered materials can absorb the new supply.

The term "recycled product" is used here to mean a product made in all -- or part -- from secondary material that has been recovered from manufacturing or post-consumer waste. Alternatively, "recycled product" may mean a product that has been rebuilt, such as a rebuilt engine.

Recycling involves three elements: collection, manufacturing and use. (These are represented by the three arrows in the traditional recycling symbol.) The three elements must be in balance to fully realize the potential of a recycling program as a means of waste management, energy conservation, and resource conservation. Merely collecting "recyclables" is not recycling. Recycling does not occur until the recovered materials are returned to the economic mainstream.

According to the National Institute of Governmental Purchasing, government purchases represent from 20 to 21% of GNP (7-8% federal, 12-13% state and local). In addition, governments have an important role in influencing private purchases, both by example and by their standards and specifications.

Present Programs

At the federal level, Section 6002 of the Resource Conservation and Recovery Act (RCRA), requires purchasing programs for recycled products by federal agencies and by state and local agencies and contractors using appropriated federal funds. The U.S. Environmental Protection Agency (EPA) has published five guidelines for recycled paper and paper products, rerefined oil, retreaded tires, building insulation products, and cement and concrete made with fly ash. The guidelines describe specifications, minimum content standards, and recommendations on establishing a procurement program. EPA is also examining the feasibility of new guidelines for building and construction materials, rubber products, asphalt rubber and yard waste compost.

There are some 38 states and 16 local governments that have ordinances or

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regulations favoring the purchase of products containing recycled materials. In Maryland, current law requires 40% of the state's paper purchases to be recycled paper (defined as paper containing 80% post-consumer waste). The law also requires State agencies to develop a plan to increase their purchases of recycled products. A new law passed by the General Assembly in 1990 requires a five percent price preference for such products.

Elements of a Recycled Product Purchasing Plan

Governments, businesses and non-profit organizations should establish programs to purchase products containing recycled materials. The National Recycling Coalition, a national public-private non-profit organization committed to increasing recycling, recommends several key elements of a recycled product purchasing plan. These are summarized below.

1. Commitment to Buy. Organizations must establish a policy to buy recycled products. This commitment will provide leadership to users, and convince suppliers that a consistent, long term demand exists.

2. Review Purchasing Specifications. Specifications should be reviewed to eliminate prohibitions or limitations of recycled materials. Subtle obstacles, such as brightness levels for paper, must be identified and reviewed.

3. Common Definitions and Percentages. Organizations should use existing minimum content standards and definitions. Manufacturers cannot supply different products to the 50 states, more than 83,000 local governments, or millions of private organizations. Standardized specifications enable manufacturers to offer commodity items at a lower cost than specialty items.

4. Variety of Products. Even though paper makes up the largest fraction of the waste stream, buying recycled paper alone will not solve the solid waste problem. Organizations should consider buying a variety of recycled products, including paper, oil, plastics, auto parts, compost, aggregate, rubber, and so forth. Organizations should also consider recycling services such as tire retreading and oil recycling.

5. Testing Products. Organizations should test recycled products to determine how they work on certain equipment and for particular end uses.

6. Phased-In Approach. It is wise to phase-in use of recycled products so that users can adjust to the program and manufacturers can make capital investments to

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produce products containing recovered materials.

7. Price Incentives. Recycled products initially may be more expensive than corresponding products made entirely from virgin materials. (Much of this has to do with the present short supply of certain secondary materials meeting necessary specifications.) The organizational commitment to use recycled products may be fulfilled by offering a small price preference to suppliers, by considering life-cycle costing, or establishing set-asides. Many public sector organizations have adopted price preferences as an investment in market development.

8. Cooperation Between Solid Waste and Purchasing Officials. Both solid waste and purchasing officials have expertise and experience that should be used to develop an effective program for buying recycled products.

9. Cooperation Among Manufacturers, Vendors and Users. Organizations must actively solicit bids from manufacturers and vendors of recycled products and widely publicize the bids. Manufacturers and vendors must be encouraged to provide a wide range of recycled products and let users know about them.

10. Cooperative Purchasing. Organizations should consider joining together to buy recycled products. Cooperative purchases expand the volume purchased, reduce unit costs, help ensure availability, and establish common specifications.

11. Waste Reduction and Recyclability. In addition to buying recycled products, organizations should buy recyclable products.

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Sources of Assistance

The local recycling coordinator, solid waste manager or purchasing department can provide technical assistance. Further assistance is available from:

Northeast Maryland Waste Disposal Authority
25 Charles Street, Suite 2105
Baltimore, Maryland 21201-3330
301-333-2730

technical assistance
information on suppliers

Maryland Environmental Service
2020 Industrial Drive
Annapolis, Maryland 21401
301-974-7254
800-492-9188

technical assistance
publishes the *Maryland
Recycling Directory*

Maryland Department of the Environment
Office of Waste Minimization and Recycling
2500 Broening Highway
Baltimore, Maryland 21224
301-631-3315

technical assistance

U.S. Environmental Protection Agency
Recycled Guideline Hotline
c/o EH Pechan & Associates
5537 Hempstead Way
Springfield, Virginia 22151
703-941-4452

information on federal
procurement guidelines c/o
and recycled product
suppliers

GUIDE TO WASTE AUDITS FOR WASTE REDUCTION AND RECYCLING

Waste generated in the home is only about one-half of the municipal solid waste stream. Businesses and public and private institutions (such as schools and government facilities) produce the other half. In order for Counties to meet the State's recycling goals, businesses must participate in recycling and waste reduction programs.

Waste reduction means avoiding the generation of waste. In addition to recycling, it includes several other actions.

- using supplies and equipment more efficiently
- replacing disposable materials with reusable and recyclable materials
- buying products and equipment that are durable or easily repairable or recyclable

Waste reduction is the most environmentally benign form of waste management. Unlike recycling or virgin production, there is no need to process or transport materials and the amount of energy and raw material used is reduced. The less waste produced, and requiring disposal, the more money is saved by governments and businesses.

Waste Audit

A waste audit will identify areas or activities where waste can be reduced. The audit identifies raw materials being used, waste composition, recyclable materials, and activities and procedures that can be changed so as to produce less waste.

A successful waste audit should include the following elements:

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- naming a program coordinator to conduct the waste audit, get employees involved, track the progress of the program and solve problems
- developing waste reduction goals
- conducting a visual survey of materials in the trash
- identifying types and quantities of waste generated
- reviewing purchasing practices
- identifying waste reduction opportunities

Once the audit is complete, the waste reduction program must be implemented. This includes:

- establishing a waste reduction and recycling policy (See, for example, the suggested policy following this Guide.)
- publicizing the program
- training staff
- implementing the recommendations and publicizing the results
- evaluating and revising the program

A waste audit should be conducted at least once a year to ensure that the program is complete and up-to-date. The remainder of this text will focus on techniques to reduce waste generation.

Reducing Paper Waste

According to an EPA report, paper and paperboard represent the largest percentage of material discarded into the municipal waste stream, almost 40%. Office waste is about 10% of this and most of it is recyclable. How can paper waste be reduced? Listed below are some of the techniques.

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- Use dual-sided copying whenever possible. Dual-sided copying can save up to 50% of paper purchases, reduce the need for new filing cabinets and file space, reduce mailing costs, and permit smaller mailing envelopes to be used.
- Use lighter weight papers whenever possible. Such papers are generally less expensive.
- Establish centralized filing systems to reduce the number of copies of documents.
- Use obsolete forms for drafts and memo pads. If no sensitive material is involved, the paper can be donated as drawing paper to child-care or similar facilities.
- Reuse interoffice envelopes, file folders, and corrugated boxes.
- Eliminate needless forms.
- Use central bulletin boards, the telephone, and staff meetings instead of sending memos.

Many organizations measure success by the length of their mailing list. Organizations need to communicate, but there are ways to reduce waste in doing so.

- Reduce mailing and distribution lists and reevaluate quantities needed for reports and publications.
- Share documents with other staff or agencies.
- Remove your name from mailing lists for materials you no longer need or share with others.
- Use electronic or computer mail.

Government and businesses can buy paper products that can be recycled in office wastepaper recycling systems. Switching to white ledger and white legal pads will increase the value of waste paper. You can replace plastic-window envelopes, which are rarely recyclable, with open-window envelopes. Mailing labels and other sticky products should be water soluble to permit recycling. Reports should be printed on non-glossy paper to

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allow excess material and trim to be recycled. These techniques can improve the value of the wastepaper by eliminating contaminants.

The purchasing division should work closely with the records-management division on wastepaper recycling. The records-management division disposes of material after it remains in storage for a required number of years. They work with local recyclers and know which paper can be recycled profitably and which contaminants (glues, carbon paper, etc.) reduce the value of waste paper. Purchasing officials should use the information to assure that future discards are more recyclable.

Inventory Control

Public and private agencies should establish a computerized inventory control for the products they buy to avoid wasteful duplication. Agencies can share materials and buy in bulk quantities to reduce unit costs and consume less packaging.

Purchasing officials should cooperate in the inventory system and with their salvage bureaus. Salvage officials know which products can be reused or recycled. They can inform agencies of available products and suggest products that are easier to recycle. The salvage bureau can sell or donate usable equipment to other agencies, governments, citizens (through auctions), rebuilders, recyclers, and nonprofit organizations.

Influencing Manufacturers

Agencies can use their purchasing power and specifications to convince suppliers to reduce waste volume and toxicity. A specification for packaging can specify the use of recyclable paperboard or prohibit the use of inks that contain toxic metals (e.g., lead or cadmium). They can require that manufacturers of automobile or truck batteries accept used units for recycling before the government will buy new ones.

Remanufacturing

More than five hundred U.S. firms are involved in remanufacturing, an industrial activity that collects discarded or nonfunctioning durable products, disassembles and refurbishes reusable parts, replaces other parts, and reassembles the parts into usable products. Examples of products that can be remanufactured include vehicles, vehicle parts, transformers, vending machines, tires (retreading), respliced computer paper, compressors,

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telephones, and many others. Organizations can buy remanufactured products and so reduce wastes.

Other Waste Reduction Techniques

Governments and businesses have other methods of reducing waste:

- Use life-cycle costing formulas that include product life and disposal costs to encourage recyclable, reusable, and durable products.
- Buy reusable pallets.
- Buying cloth towels or hand warmers instead of paper towels.
- Buy reusable wiping cloths.
- Use backhauling, where the vehicle making a shipment of finished products takes recyclable materials back to the manufacturer instead of returning empty.

Suggested Organizational Policy

WASTE REDUCTION AND RECYCLING

In order to promote conservation, management is establishing this policy regarding materials reuse, recycling and waste reduction in all operations. To implement this policy, our organization will, to the extent practicable, undertake the following actions.

1. Purchase durable products, rather than disposable products.
2. Use two-sided copies.
3. Use recycled paper meeting, at a minimum, federal EPA guidelines, for all stationery, newsletters, copy paper, pads, business cards, and computer paper. A message to that effect will be stated on the paper when possible.
4. Use no inks containing toxic components for our publications.
5. Purchase and use recyclable paper for internal use and avoid colored or other papers that can not be recycled.
6. Use the back side of used paper or obsolete forms for scratch pads and first drafts.
7. Minimize the use of specified glues on products.
8. Use single copies with routing slips within the office whenever possible, rather than indiscriminate use of copies of memos.
9. Recycle paper, metal and glass.
10. Include a statement in all solicitations for bids for goods and services that this organization prefers doing business with companies that adhere to these principles.
11. Urge all employees, consultants and vendors to implement the above practices and follow the principles of waste reduction and materials reuse and recycling.

Your management will report annually on the success of everyone's efforts in reducing waste.

Minutes of the
Governor's Advisory Council on Recycling

Date: June 4, 1990
Time: 9:00 a.m.
Place: Maryland Municipal League Building
Annapolis MD

Dr. Harvey Alter, Chairman, opened the meeting at 9:05 a.m. The minutes from the May meeting were approved as written.

Dr. Alter indicated that a solid waste conference was to be held by EPA in Washington on June 14 and 15. A Howard County meeting on solid waste issues was scheduled on June 11 at the Turf Valley Country Club. Secretary Walsh would be attending.

The April 4 Keep America Beautiful (KAB) Conference is available on video tape compliments of Giant Food Corporation. Copies were distributed at the meeting. Others will be sent as copies are available. The draft letter to the Governor from the Council will be faxed to members by Dr. Alter. Any suggested changes to the language should be returned as quickly as possible.

Mr. Mike Gagliardo reported on the draft recycling guides. He received no comments on the draft so the finalized report will be prepared and will be available on disk.

Mr. Ronald Nelson reported on the Markets and Marketing Data Base from the regulatory perspective (copy attached). He indicated that regulations would be developed to clarify counting

- what is being recycled,
- who obtains credit, and
- development of composition/quantity data.

For example, no credit would be obtained for individuals who compost yard waste, yet a city or county that collects this material for composting would obtain credit to the extent that the product is marketed. Scrap and white goods will also be addressed.

Dr. Alter reported that the Natural Resources Defense Council (NRDC) is pushing EPA to establish commodity specific goals on recycling. This level of detail could impair programs since markets fluctuate. Without additional testimony, EPA may adopt such an approach.

Mr. Barry Scher stated that a uniform format for reporting should be developed. Perhaps the ASTM Committee D-34 proposal, as methodology for characterizing waste composition, will serve this need.

There is a reluctance on the part of industry to divulge markets or prices. The question arises as to whether or not the State has the authority to require private industry to divulge such information.

Mr. John Schafer reported from the local government perspective (copy attached). The key issue is that the regulating agency should not be involved in program implementation, but instead should conduct plan reviews, inspect facilities, and serve in a clearinghouse function.

Mr. Harry Benson reported that the Department is planning a training course for County Recycling Coordinators. The course is planned for after the July 1 date submission of Recycling Plans.

Dr. Alter indicated that networking is vitally important in maintaining program effectiveness. Mr. Tom Redmond stated that efforts by the automobile recycling dealers to form a cooperative were met with threatened law suit. He pointed out that the Motor Vehicle Administration has regulations that require destruction of perfectly good automobiles. These regulations should be changed to encourage reuse of the vehicles.

Mr. Scher reported that Giant Food Corporation wants to assist recycling efforts but not be in the trash business. They want to find a company to provide containers and removal services at no cost to the company, who will make space available on their lot. Current operations at four stores in the Bethesda area require daily removal (15 yd³ containers). Laidlaw is doing the removal free for the first four months. BFI wanted \$5,000 per month.

Dr. Alter indicated that better data on quantity and composition of waste is needed. Secondary materials are considered a marginal source of supply - the first to be effected if a market changes. He indicated that MES and KAB recycling directories are the best in the country, but need to be expanded to include a list of service firms to assist companies, such as Giant Food, who want to help in recycling efforts.

Dr. Alter appointed Mr. Nelson, Mr. Lenny Minutillo, and Mr. Schafer to a committee to report on what the central office group should be doing to move materials to the market. The Council, on the basis of the committee report, could make recommendations on needed resources.

Dr. Alter stated that one directive from the Governor was to examine packaging. This being a topic he has examined for almost 30 years, Dr. Alter reported that packaging constitutes 32% of the total municipal solid waste stream, with the following breakdown by composition:

| | |
|--------------------|-----|
| Glass..... | 31% |
| Plastics..... | 15% |
| Wood..... | 6% |
| Paper..... | 27% |
| Corrugated..... | 13% |
| Aluminum cans..... | 2% |
| Steel cans..... | 6% |

Between 1970 and 1984, the per capita generation rate has remained relatively constant. This is due to a number of factors:

- shift in packaging materials; and
- light-weighting of packaging.

From the data, Dr. Alter concludes that the effects of packaging on MSW are overstated, and that the efforts to ban specific items is misdirected and will prove unproductive. Banning has become a popular exercise because:

- using this approach, one can attack a large company;
- there is a small effected constituency; and
- one can point to the effort as a "success."

To make a significant difference in waste generation, one must target large component items, which simply do not exist in the composite waste stream.

Dr. Alter proposed that the September meeting be scheduled as an all day session, possibly at the DNR Wye Island retreat. The Department will make arrangements.

The next meeting is scheduled for Monday, July 9, 1990 at the Municipal League Building in Annapolis. The Council will consider such proposals as bans, deposits, and taxes on packaging.

There being no other business, the meeting was adjourned at 11:47 a.m.

Governor Advisory Council on Recycling
 June 4, 1990
 Maryland Municipal League

| <u>Name</u> | <u>Representing</u> |
|-----------------------|--|
| William Chica | MDE HSWMA |
| Ron Nelson | " " |
| Harry Benson | MDE Office of Waste Minimization & Recy. |
| TOM REDMOND | Automotive Recyc. Ind. |
| Michael Gagliardo | Northwest Authority |
| James Peck | MML |
| BARRY F. Scher | MAFDA |
| MICHAEL PELCZAR | Environment |
| Jim Katzel | Ma Rec. Waste Assoc. |
| John W. Schafu | MACO |
| Michael Taylor | MES |
| Bill Borroughs | Procter & Gamble |
| George Perdikakis | MES |
| Chip MacLeod | MACO |
| HARVEY ALTER - Chaps. | Public |



DEPARTMENT OF THE ENVIRONMENT

2500 Broening Highway, Baltimore, Maryland 21224

Area Code 301 • 631-3304

William Donald Schaefer
Governor

Martin W. Walsh, Jr.
Secretary

TO: Governor's Advisory Council on Recycling

FROM: Ronald Nelson, Director *WJ*
Hazardous and Solid Waste Management Administration

DATE: June 4, 1990

SUBJECT: Market Study Analysis

The Maryland Department of the Environment (MDE) has reviewed the Maryland Recyclable Materials Market Study and has found it satisfactory for use and distribution.

That is not to say that we are totally satisfied with the Study's coverage of the regional and State markets.

MDE feels the Study is lacking in the paper brokerage explanation and listing area. An area that is also incomplete is the Tire Markets and Technology section. The Maryland Environmental Service and MDE plan to investigate these areas and report to the Council, jurisdictions, and Legislature.

The following is a brief summary of MDE's review of the Study.

The Maryland Recyclable Materials Market Study provides a current and ten-year projected assessment of (1) local supply of specified recyclables, and (2) the supplies of these same materials from states in the designated 16 States South-Central Market areas.

The results of this Market Study provide an extensive supply-and-demand database of recyclables as well as processing and brokerage capability for materials diverted for reuse from the Maryland municipal solid waste stream.

Governor's Advisory Council on Recycling
Page 2

The Study arms the State, counties, and municipalities with a calculated market analysis.

The three contributors, MDE, MES, and the consulting firm of Gershman, Bricker & Bratton, Inc., make conclusions about Maryland's market future and what steps need to be taken to preserve and expand the State's markets.

It focuses on the current market situation and how it can react with the oncoming State and regional expansion. It also makes recommendations as to how the markets can be expanded through increased exportation via the Port of Baltimore. It recommends market incentive programs such as the Governor's Recycling Bill which gives purchase preference to materials made from recycled material. It also suggests the need to develop alternative markets such as glassphalt, fiberglass, or newsprint for animal bedding.

The recycling market tool is currently being distributed to the Governor, General Assembly, County governments, and the Pratt Library.

Market Study General Findings

1. Solid Waste Composition

better data needed-rec's waste sampling studies

2. Intermediate Processing Facilities

calculates an additional capacity requirement of approx. fourteen 200 TPD facilities statewide by 1995.

3. Export

markets for wastepaper complex, need to be developed through professional brokers, state hired commodities specialists or contacts with shipping dispatch co.s, and U.S.-based offices of foreign trading companies. markets for used tires and other commodities could be developed in the same way.

4. Market Incentives

preferential procurement
mandate min. recycled content
coop purchasing for state and local governments
review building codes and specifications

5. Coop Research and Marketing

act as test market for products made with recycled materials.

6. End-user recruitment

formulate statewide industrial recruitment policy and implementation plan for desired industries.

Markets Summary

Glass - Flint (clear glass), amber (brown glass) are good. Green is currently alright, may have problems in future.

Aluminum - Perfect, bread and butter of any recycling program.

Steel & Bi-Metal Cans

No problems, steel mills want and need it.

Wastepaper

Newsprint - 1) 1990 is ok, however, trouble in the future. Regionally: Must export more, must consume more in the future. Port of Baltimore could be the answer.

2) Other markets are needed.

3) Material must be properly value upgraded to ensure marketability.

Corrugated Cardboard

Not as bad as newsprint. Regionally, we should be able to consume total volume through 2000. Need to export more.

High Grade Office Paper

Good market in future. Must continue to export. Should also utilize neighboring ports especially Norfolk.

Mixed Waste Paper

Over supply exists. Exporting will expand, however not fast enough.

We must increase export market through Port of Balto.

Tires

- This section of the Study is extremely weak. Needs a reinvestigation.
- Little or no money paid for material.
- We need more processing capacity and development of markets and uses.
- Expand export business through Port of Baltimore.

Plastic

- HDPE and PET plastics are currently ok, could be artificial, future depends on plastic industry.
- LDPE (film plastics) and polystyrene are not being recycled yet. Still in research and development phase. Recommend a pilot processing project.

Lead Batteries

Well established collection system. Current recovery rate is 80-95%. Good future.
No demand for household batteries.

Other Ferrous Metals

White goods (appliances, refrigerators, stove, etc.) and ferrous auto scrap. Well established and good market currently and in future.

Appendices

- A. List of (processing facilities) recycling centers with capacity, contract, duration, equipment provisions, materials accepted, specifications, transport requirements in, and in close proximity to, Maryland.
- B. End users in entire study area.
By commodity with product, capacity where supplied, 0=not supplied, specs, and transport availability/type (rail, truck, barge; delivery/pickup.
- C. Broker listing
Mainly scrap dealers, recycling centers.
Paper brokers do not belong to any organization - operate independently - no source for consultants.
- D. Listing of supply and demand for each commodity by State; for Maryland and neighboring States and for the entire study area.



Governor's Advisory Council on Recycling
Monday, June 4, 1990

Report of Ad Hoc Subcommittee
on the
Role of State and MDE's Office of Waste
Minimization and Recycling (OWMR)

County/Municipal Perspective

The county/municipal ad hoc subcommittee met on Thursday, May 31, at the Maryland Municipal League headquarters in Annapolis.

The understood purpose of the subcommittee was to address the question: "From the perspective of local government (municipal and county), what function/role(s) should MDE's Office of Waste Minimization and Recycling play in Maryland's recycling efforts?"

Participants included:

*John Schafer, Harford County - MACo
*Regina McNeill, Town of Berwyn Heights - MML
Jim Trouba, Queen Anne's County, Director of Solid Waste
Linda Fields, Howard County, Recycling Coordinator
Dave Helmecki, City of Greenbelt
Jeff Repp, Town of Indian Head, Town Manager
Jim Peck, MML Staff
Chip MacLeod, MACo Staff

(*Advisory Council Member)

Technical Assistance Function:

Environment Article, Section 9-1702 (d)(1) states:

"The Office shall: (1) Assist the counties in developing an acceptable recycling plan required under Sec. 9-1703 of this subtitle and Sec. 9-505 of this title, including technical assistance to the local governments;..."

- The Office of Waste Minimization (OWMR) is understaffed, particularly in the area of technical assistance.
- The Maryland Environmental Service (MES) is currently doing more, in terms of technical assistance, directly with local governments.
- MES has the expertise and has gained the experience, and appears to be better staffed than OWMR for hands-on plan implementation in jurisdictions that request their services.
- Any duplication of staffing and efforts should be avoided.
- A key distinction between MES and OWMR is that the services of MES are not without costs to the user.

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Ad Hoc Subcommittee Report - County/Municipal Prospective
Governor's Recycling Advisory Council

- Department of the Environment/OWMR should focus on the "bigger" picture with regards to recycling, while MES should enhance its services and efforts to provide hands-on assistance to local governments at their request.
- Regulators should not be directly involved in implementation, but oversight. In other words, OWMR should concentrate on plan review, plan updates, comprehensive planning, inspections, site visits, and operational review.
- The roles and functions of various state agencies with regards to recycling and waste management must be clear and distinct.

Clearinghouse Function:

Local governments are competing with each other for markets. A serious problem facing local recycling efforts involves the inconsistency of markets and vendors, ie., while one county is receiving \$5/ton for cardboard, another county pays \$15/ton. Similarly, while one county buys a baler for \$7,000, another pays \$8,000 for the same. A closer network among local recycling coordinators through a central mechanism (OWMR) would help to minimize such inconsistencies and fragmentation.

- OWMR should sponsor regular forums for the exchange of ideas and information among local government personnel responsible for recycling and solid waste management, including bi-annual conferences/workshops AND a newsletter. These would help to "formalize" the role and efforts of local recycling coordinators.

Moreover, regular communications and information exchanges among local recycling coordinators (whether by conference or newsletter) will undoubtedly be viewed by dealers, vendors, haulers, marketers, consultants, etc., with a watchful eye.

- OWMR should make readily available a wide range of recycling and solid waste management information and resources regarding:
 - ready markets - counties and municipalities should be informed of fair market values for their product and desired location.
 - funding sources (grants/loans) and funding mechanisms
 - recycling efforts throughout state and country
 - model recycling and solid waste management programs
 - experience data and recycling percentages
 - educational materials (all ages)
 - promotional/public relations

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- equipment and materials purchasing
- recycling progress within each county and municipality
- alternative approaches

The sources of this information should include, but not be limited to, the State of Maryland and its local governments, state and local governments

throughout the country, business and private industry, and other countries. Governor's Advisory Council on Recycling

Optimally, this information should be readily accessible via phone or computer hookup. An electronic data base available to local governments and the general public.

Miscellaneous Comments:

- Recycling costs money! It is a mandate to Maryland's local governments that carries a price tag that has yet to be determined. The identification and/or establishment of funding mechanisms and sources should be a top priority.
- The benefits of regionalization should not be overlooked. Local jurisdictions should be grouped regionally in an effort to identify the closest markets for their recycled products.
- The actions and attitudes of State personnel with regards to State and local recycling efforts require consistency. While each local subdivision and jurisdiction differs, the commitment Maryland has made to recycling should be clear. Recycling is an absolute component of what we seek to achieve - an effective and efficient integrated approach to solid waste management.

Respectfully submitted,

John Schafer, Member
Regina McNeill, Member

State of Maryland
GOVERNOR'S ADVISORY COUNCIL ON RECYCLING

Meeting Agenda

August 6, 1990

Meeting at the Maryland Municipal League
1212 West Street, Annapolis

| | |
|------------|--|
| 9:00 a.m. | Convene, Self Introductions and Adoption of Minutes |
| 9:15 a.m. | Presentation on Materials Recovery Facilities (MRFs) Mr. Matthew Coz, N.E. CRINC, Billerica, MA (N.E. CRINC has been selected for the MRF in Montgomery Co.) |
| 10:30 a.m. | Continued Discussion of Bans, Taxes and Deposits (Continuation of discussion: can bans or taxes motivate recycling?) |
| 11:15 a.m. | Continued Discussion of Establishing a Markets and Marketing Database State Interests - Ron Nelson City and County Interests - Regina McNeil Private Sector Interests - Tom Redmond |
| 11:45 a.m. | Distribution of County Recycling Plans for Familiarity |
| 11:55 a.m. | Old Business Staff report on pending Executive Orders Future Topics* |
| 12:00 noon | Adjournment. |

-
- * New construction requirements for recycling
 - * Drivers for phasing in user fees.
 - * Recycling without changing current practices in solid waste management.
 - * Recycling as an economic development tool: labor, economies of scale, environmental permitting.

**Minutes of the Meeting of the
Governor's Advisory Council on Recycling**

Date: July 9, 1990
Time: 9:00 a.m.
Place: Maryland Municipal League Building
Annapolis, Maryland

Dr. Harvey Alter, Chairman, convened the meeting at 9:10 a.m. The minutes from the June meeting were requested to be amended to indicate that Dr. Alter had made a slide presentation on packaging in the waste stream.

Dr. Alter acknowledged Mr. Paul Hollinger as a new member of the Advisory Council representing the packaging industry.

Dr. Alter distributed the following materials:

- a recycling brochure from "Keep America Beautiful" (KAB);
- environmental awareness brochure from Glad Wrap;
- summary of mandatory recycling by State ;
- Fairfax County Recycling News; and
- "The Politics of Product Bans," Reid Lifset and Marian Chertow. Environmental Forum, March/April '90, pp. 12-14.

There was open discussion of the use of tipping fees by the counties. Many counties which have no tipping fee as such have a user fee for out-of-county waste. Some counties, such as Worcester, still have no tipping fee. It was stated that if there is no true user cost, there is no economic incentive for recycling. The cost to the public is often hidden since there is no specific charge for waste disposal as there is for sewer service and water usage. Mr. Ronald Nelson said that he would be surprised if there were no legislation passed next year to establish a user fee per ton at the landfill which would be used to finance recycling.

Dr. Alter expressed concern that the best figures for municipal waste amounts be used when considering the magnitude of fees which will be generated. He felt that we may be fooling ourselves. Mr. Nelson said that getting a handle on real weights is difficult especially where there are no scales at landfills. Having sophisticated scales are preferred but there is a cost associated with this.

The next topic for discussion was recycling promotion. It was agreed that efforts should begin in kindergarten. Dr. Alter passed around a KAB poster which includes suggested lesson plans and is available for a fee. Mr. Larry Hayward suggested that it gets more difficult as children get older. Mr. Barry Scher added that the interest in recycling in the general public is already there as evidenced by the overwhelming response to drop-offs of recyclables in Giant Food's pilot program. It is just a matter of making it convenient. Dr. Dan Morhaim added that most people now realize the importance of preserving the planet. Dr. Alter suggested that the biggest problem is that the response can not be equalitarian. There are problems associated with recycling in high density areas and rural areas. How do you direct the message so that you do not have to exclude some of the populace. The group was also reminded that residential waste is only half of the waste stream. Business recycling must be addressed to reach even modest goals of 20% recycling.

There was some follow-up discussion of markets from the last meeting. Dr. Alter summed it up by saying that except for newspaper, most markets are supply limited. He stated that most counties need data base assistance from some central information source. The three task forces assigned to report on this issue requested that they report at the next meeting. Mr. Schafer had received eight responses from counties. Mr. Peck from the Maryland Municipal League said they had, as yet, received no response from municipalities. Mr. Chip MacLeod summarized the county response as showing interest in a newsletter particularly with current market information. The Eastern Shore counties have already come together to generate such a newsletter for themselves to share information. Mr. Nelson added that most counties do not know how to enter the commodities market. They are not comfortable dealing in profits. Marketing operates under a different set of rules than procurement which is what counties are familiar with.

The next topic of discussion was bans, taxes, and other ways to stimulate recycling. Dr. Alter reported that those products proposed for banning were such a small percentage of the waste stream that banning them had no real impact on waste reduction. The social considerations of bans must also be considered. If plastics are banned to force glass use, for example, we are putting glass into the hands of children and into the bathroom.

Mr. Scher said that the food industry is aware of the necessity for environment friendly packaging. They have formed a solid waste task force which will have its first meeting within the month to address these issues.

Dr. Alter stated that any Statewide ban would be subject to suit on constitutional grounds.

Mr. Paul Hollinger added that although bans may not effect waste reduction, they may convey a sense of urgency to the public and effect public participation in recycling. Mr. James Katcef remarked that the threat of bans has served recycling by prodding industry to increase their commitment to recycling.

Mr. Hollinger suggested that recommended criteria for product bans be supplied to the federal government for consideration.

Dr. Alter suggested that packaging taxes can encourage recycling and reduce waste. He reported that Florida taxes industries that do not achieve a specified recycling rate for their product. The inequities of Massachusetts' packaging tax which taxes the box for a refrigerator at the same rate as the individual sleeve cover on a straw were discussed.

Taxes on virgin materials were discussed. The effect on consumer choice must be considered. When is the consumer no longer economically indifferent? It was suggested that if taxes are imposed, the public gets the impression that government is taking care of things and they do not have to get involved. Tax incentives for certain activities, such as purchase of recycling equipment, may be more effective.

Dr. Alter will distribute an article, "Facing America's Trash," which addresses taxing mechanisms to stimulate thinking on the subject. He proposed that everyone come up with suggestions at the next meeting.

Dr. Alter requested that the Council get an opportunity to look at the recycling plans which have been submitted. Mr. Nelson will work out the logistics, dividing the plans among the members. Each member will then report on a plan. Dr. Alter feels that this will give them an idea of how the counties are thinking. There was some discussion as to how the counties would feel about having their plans critiqued by other than MDE. Mr. MacLeod suggested that the recycling coordinators come in and report on their plans. Dr. Alter felt this would be too time consuming and added that the group would not be criticizing the plans but merely gaining insight into how the counties are thinking. A summary sheet from the draft plans will be supplied by MDE showing proposed county activities.

New business brought up for consideration by Dr. Alter was Statewide recommendations on leaving grass clippings on the lawn. Mr. Nelson was charged with contacting the Department of Agriculture for advice.

Dr. Alter proposed the following additional topics for future discussion:

- the trade-offs involved in the choice of paper vs. plastic bags;
- should the State or the counties be putting out a newsletter concerning recycling issues;
- Mr. Nelson's question on using available technology to recycle without public participation, i.e., without source separation;
- recycling as an economic development issue; and
- is there a case for bans?

The next meeting is scheduled for Monday, August 6, 1990 at the Municipal League Building in Annapolis. The members will report on county plans reviewed. Mr. Nelson will report on Department of Agriculture's views on grass clippings. The tax/ban issue will be further discussed. Dr. Alter reminded the group that the September session will be all day and will not take place on September 10.

The date has not been finalized. The meeting was adjourned at 11:47 a.m.

Directory of Materials Recovery Facilities

To keep up with the rising number of new MRF's in the waste industry, Waste Age presents the first-ever Directory of Materials Recovery Facilities.

This MRF catalog, arranged by state, contains information on the owners and operators for each facility. Also included are the sites' capacity (in tons per day) and a list of recyclables accepted at each facility. (Note: all facilities accepting glass process all three colors except when specifically noted.)

For further information about each MRF, a phone

number and contact have been provided with each entry.

Though Waste Age strove to include as many facilities as possible, this list is by no means complete. All MRF's listed should be operational or near completion by March 1, 1990, unless otherwise noted. If any facilities were inadvertently omitted from the list, every attempt will be made to have them added in subsequent issues. Waste Age welcomes any comments or suggestions for improvements on future lists.

| LOCATION | OWNER | OPERATOR | CONTACT | CAPACITY (TPD) | TYPES OF RECYCLABLES ACCEPTED |
|-------------------|---|---|--------------------------------|----------------|--|
| ARIZONA | | | | | |
| Phoenix | St. Vincent DePaul Society | St. Vincent Depaul Society | Paul Gesicki: 602/495-3039 | 23 | newspaper, mixed paper, styrofoam, cardboard, glass, aluminum, ferrous scrap, tin & bi-metal cans, PET & HDPE plastics |
| CALIFORNIA | | | | | |
| Belmont | Browning-Ferris Industries, Inc. | Browning-Ferris Industries, Inc. | Gary Zirelli: 415/637-1411 | 75 | newspaper, cardboard, glass, aluminum, ferrous scrap, tin & bi-metal cans, PET & HDPE plastics |
| Fremont | Oakland Scavenger /Waste Management | Oakland Scavenger /Waste Management | David Deeks: 415/532-1400 | 75 | newspaper, glass (mixed), aluminum, tin & bi-metal cans, PET & HDPE plastics |
| Milpitas | Browning-Ferris Industries, Inc. | Browning-Ferris Industries, Inc. | Greg Apa: 408/262-1401 | 200 | newspaper, computer & office paper, cardboard, glass, aluminum, ferrous scrap, tin & bi-metal cans, PET & HDPE plastics |
| San Jose | Waste Management of North America | Waste Management of Santa Clara | Tim Flanagan: 408/452-8544 | 120 | newspaper, glass, aluminum, tin cans, PET & HDPE plastics (pilot program for mixed paper) |
| San Rafael | Marin Recycling & Resource Recovery Association | Marin Recycling & Resource Recovery Association | Joseph Garbarino: 415/485-5646 | 102 | newspaper, computer & office paper, cardboard, glass, aluminum, tin cans, PET plastics |
| Santa Rosa | Waste Management of North America | Waste Management of North America | Linda Medders: 707/584-4200 | 100 | newspaper, computer & office paper, colored ledger paper, magazines, cardboard, glass, aluminum, tin cans, PET & HDPE plastics |

MRF List contd.

| LOCATION | OWNER | OPERATOR | CONTACT | CAPACITY (TPD) | TYPES OF RECYCLABLES ACCEPTED |
|------------------------------------|--|-------------------------------------|-----------------------------------|----------------|--|
| CONNECTICUT | | | | | |
| Mystic | Southeastern Connecticut Regional Recovery Authority & Town of Groton | Resource Recovery Systems, Inc. | Toby Goodrich: 203/887-6368 | 23 | glass, aluminum, tin & bi-metal cans |
| FLORIDA | | | | | |
| Pinellas County | Browning-Ferris Industries, Inc. | Browning-Ferris Industries, Inc. | Glenn Wagner: 813/573-9150 | 300 | newspaper, computer & office paper, cardboard, coated book, glass (clear only), tin & bi-metal cans, PET & HDPE plastics, rigid PVC & other elastics |
| Pinellas Park (under const.; 7/90) | Waste Management of North America | Waste Management of Pinellas County | Doug Lukens: 813/572-8828 | 175 | newspaper, computer & office paper, corrugated cardboard, glass, tin cans, PET & HDPE plastics |
| ILLINOIS | | | | | |
| Bensonville | Waste Management of North America | Waste Management of North America | Edward Evenhouse: 312/595-4800 | 7 | newspaper, glass, aluminum, tin cans, HDPE plastics |
| Chicago Ridge | Waste Management of North America | Meyer Brothers Scavenger Service | Ted Ciapinski: 312/598-6600 | 11 | newspaper, glass, aluminum, tin & bi-metal cans |
| McHenry County | Waste Management of North America | Waste Management of McHenry County | Tominick Scolaro: 815/385-2221 | 4.5 | newspaper, glass, aluminum, tin cans, HDPE plastics |
| Wheeling | Waste Management of North America | Buffalo Grove / Wheeling Disposal | Tom Mazzenga: 312/520-7200 | 37 | newspaper, glass, aluminum, tin & bi-metal cans, HDPE plastics |
| MASSACHUSETTS | | | | | |
| Springfield (under const.) | State of Massachusetts (building and land) Resource Recovery Systems, Inc. (equipment) | Resource Recovery Systems, Inc. | Ralph Earl: 617/292-5987 | 240 | newspaper, mixed paper, cardboard, glass (mixed), aluminum, tin & bi-metal cans |
| MINNESOTA | | | | | |
| Blaine | Waste Management of North America | Waste Management of North America | Lynn Morgan: 612/784-8349 | 25 | newspapers, cardboard, glass, aluminum, ferrous scrap, tin & bi-metal cans, PET plastics |
| Burnsville | Dakota County | Recycle Minnesota's Resources (RMR) | Mike Trdan: 612/431-1158 | 40 | newspaper, glass, aluminum, tin & bi-metal cans, PET plastics |
| Eden Prairie | Reuter Recycling, Inc. | Reuter Recycling, Inc. | Jim Markeson: 612/935-6921 | 85.5 | cardboard, aluminum, ferrous scrap, tin & bi-metal cans, PET & HDPE plastics |

MRF List contd.

| LOCATION | OWNER | OPERATOR | CONTACT | CAPACITY (TPD) | TYPES OF RECYCLABLES ACCEPTED |
|---|---|--|---|-------------------|---|
| St Paul | Ramsey County | Super Cycle | Tom Glander 612/224-5081 | 65 | newspaper, corrugated cardboard, high grade paper, mixed office paper, glass, aluminum, tin & bi-metal cans, ferrous & non-ferrous metals, PET & HDPE plastics |
| NEW JERSEY | | | | | |
| Atlantic City | Atlantic County Utilities Authority | Atlantic County Utilities Authority | Brian Lesky: 609/348-3700 | 50 | newspaper, magazines & phone books, corrugated cardboard, computer & office paper, glass, aluminum, PET & HDPE plastics |
| Bridgewater | Somerset County | Somerset County | Anne Lazo: 201/469-3363 | 110 | newspaper, corrugated cardboard, glass, aluminum (plastics, tin plated steel, bi-metal cans, office paper, & household batteries by 6/90) |
| Camden | Camden County | Resource Recovery Systems, Inc. | Jack Sworaski: 609/663-1762 | 80 | glass, cardboard, aluminum, tin cans, PET & HDPE plastics |
| Dover Township (under const.; 8/90) | Rosetto Recycling Corp | Rosetto Recycling Corp | Bruce Rosetto: 201/341-3333 | 75-100 | newspaper, computer & office paper, cardboard glass, aluminum, ferrous scrap, tin & bi-metal cans, PET & HDPE plastics |
| Long Beach | Monmouth Recycling Corp. | Monmouth Recycling Corp | Richard Rosen: 201/870-0933 | 43 | glass (mixed), aluminum, tin & bi-metal cans |
| Newark | REI Distributors | REI Distributors | Irene Johnson: 201/271-1355 | 200 | glass (mixed), aluminum, tin & bi-metal cans, PET plastics |
| Ocean Township | Monmouth Processing | Monmouth Processing | Robert Blenden: 201/922-9420 | 225-250 | glass, aluminum, tin & bi-metal cans, tires, scrap wood (plastics starting 3/90) |
| West Paterson | W. Paterson Automated Recycling | W. Paterson Automated Recycling | Don Scine: 201/256-7519 | 70 | glass (mixed), aluminum, ferrous scrap, tin & bi- metal cans, steel, copper, wood, heavy scrap, iron, PET & HDPE plastics |
| Borough of Woodbine (acceptance testing; open 4/90) | Cape May County Municipal Utilities Authority | RRT/Empire Returns Corp. | Mary Anne Fieus: 609/465-9026 | 225 (75 min.) | newspaper, mixed paper, computer & office paper, cardboard, glass, aluminum, tin & bi-metal cans, PET & HDPE plastics |
| NEW YORK | | | | | |
| Islip | Town of Islip | Town of Islip | Elizabeth Gallagher: 516/224-5691 | 300 | newspaper, mixed paper, cardboard, glass (mixed), aluminum, tin & cans, PET & HDPE plastics |
| Lowville (under const.; 4/90) | Lewis County | Lewis County | Gary Buckingham: 315/376-5394 | 50 | newspaper, corrugated cardboard, glass (mixed), aluminum, tin & bi-metal cans, PET & HDPE plastics |

MRF List contd.

| LOCATION | OWNER | OPERATOR | CONTACT | CAPACITY (TPD) | TYPES OF RECYCLABLES ACCEPTED |
|-----------------------------------|--|---|--|-------------------|---|
| New York City (E. Harlem) | City of New York | Resource Recovery Systems. Inc | Allison Blackman: 212/240-4811 | 55 | newspaper, glass (mixed), aluminum, tin & bi-metal cans, PET & HDPE plastics |
| Pamela (under const.: 5/90) | Jefferson County | Jefferson County | Mike Kaskan: 315/785-3144 | 100 (min. 50) | newspaper, computer & office paper, corrugated cardboard, magazines, glass, tin & bi-metal cans, PET & HDPE plastics |
| Peekskill | Karta Container & Recycling | Karta Container & Recycling | Kenneth Cartalemi: 914/737-9211 | 145 | newspaper, computer & office paper, cardboard, magazines, glass, aluminum, tin & bi-metal cans, PET & HDPE plastics |
| Syracuse | RRT/Empire Returns Corp. | RRT/Empire Returns Corp | David Weitzman: 315/724-0878 | 300 | newspaper, cardboard, high grade paper, glass, aluminum, ferrous scrap, tin & bi-metal cans, PET & HDPE plastics |
| Utica (under const.: 4/90) | Oneida /Herkimer Counties | Oneida /Herkimer Solid Waste Management Authority | Kevin J. Manion: 315/798-5474 | 200 | newspaper, computer & office paper, cardboard, glass, ferrous scrap, tin & bi-metal cans, PET & HDPE plastics |
| Westbury | Omni Recycling of Westbury, Inc. | Omni Recycling of Westbury, Inc. | Thomas Bolton: 516/222-0708 | 76 | glass (mixed), aluminum, ferrous scrap, tin & bi- metal cans, PET & HDPE plastics |
| NORTH CAROLINA | | | | | |
| Charlotte | Fairfield County Redemption, Inc | Fairfield County Redemption, Inc. | Fred Remington: 704/336-3873 | 70 | newspaper, glass (mixed), aluminum, tin, steel, & bi-metal cans, PET & HDPE plastics |
| OHIO | | | | | |
| Akron | wTe Corp. | wTe Corp. | Robert Johnson: 216/376-9030 | 35-40 | post-consumer: newspaper, glass, aluminum, ferrous, tin, & bi-metal cans, PET & HDPE plastics industrial: 20 grades of office paper, corrugated cardboard, industrial plastics |
| PENNSYLVANIA | | | | | |
| Bristol | Otter Recycling | Otter Recycling | Larry Snyder: 215/788-9327 | 50-60 | newspaper, glass, aluminum, cardboard, tin & bi-metal cans, PET & HDPE plastics. |
| Bucks County | Bucks County | RRT/Empire Returns Corp. | Charles Raudenbush: 215/249-0487 | 50 + | newspaper, glass (clear only), aluminum (will expand to steel & plastics) |
| Centre County | Centre County Solid Waste Authority | Centre County Solid Waste Authority | Irene Ferrara: 814/238-7005 | 60 | newspaper, high & low Agrade computer paper, office paper, corrugated cardboard, white & colored ledger, waste paper, glass, aluminum, tin & bi-metal cans, PET & HDPE plastics |
| Lebanon County | Dixon Recyclers | Dixon Recyclers | Ernie Kleinfelter: 717/272-4655 | 80 | newspaper, cardboard, glass, aluminum, ferrous scrap, tin cans |

MRF List contd.

| LOCATION | OWNER | OPERATOR | CONTACT | CAPACITY (TPD) | TYPES OF RECYCLABLES ACCEPTED |
|---------------------|---|-----------------------------------|--------------------------------|----------------|---|
| Philadelphia | National Temple Non-Profit Corp. | National Temple Non-Profit Corp. | Mjenzi Traylor: 215/787-2760 | 40 | newspaper, glass, aluminum, tin & bi-metal cans (plastics capability but not yet recycling) |
| Philadelphia | Waste Management of North America | Waste Management of North America | Jerry Hoff: 215/244-9514 | 40 | newspaper, glass (mixed), aluminum, ferrous scrap, tin & bi-metal cans, PET & HDPE plastics |
| Susquehanna County | Susquehanna County (leases bldg. from Kerr Motor Lines) | Susquehanna County | Lee Benedict: 717/278-4600 | 4.5 | newspaper, cardboard, glass, aluminum, tin & bi-metal cans, PET & HDPE plastics, colored detergent bottles, brown shopping bags |
| York | Waste Management of North America | Waste Management of North America | Jerry Hoff: 215/244-9514 | 20 | newspaper, mixed paper, cardboard, glass, aluminum, tin & bi-metal cans, PET & HDPE plastics |
| York | York Waste Disposal, Inc. | York Waste Disposal, Inc. | Doug Arch: 717/845-1557 | 20 | newspaper, mixed paper, corrugated cardboard, glass, aluminum, tin & bi-metal cans, PET & HDPE plastics |
| RHODE ISLAND | | | | | |
| Johnston | Rhode Island Solid Waste Management Corp. | New England CRInc. | Bob Murray: 401/831-4440 | 200 | newspaper, cardboard, glass, aluminum, tin & bi-metal cans, PET & HDPE plastics |
| WASHINGTON | | | | | |
| Seattle | Rabanco, Ltd. | Rabanco, Ltd. | King Kelso: 206/382-0480 | 400 | newspaper, mixed paper, cardboard, glass, aluminum, tin, PET & HDPE plastics |
| Seattle | Waste Management of North America | Waste Management of North America | Marilyn Skerbeck: 206/763-2437 | 110 | newspaper, mixed paper, glass, cardboard, aluminum, tin, PET & HDPE plastics |
| WISCONSIN | | | | | |
| Milwaukee | Waste Management of North America | Waste Management of North America | Rusty Storm: 414/259-1149 | 7 | newspaper, glass, aluminum, tin & bi-metal cans, PET & HDPE plastics |

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**State of Maryland, Governor's Task Force on Recycling
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REPRESENTS: Maryland State Senate

Governor's Advisory Council on Recycling

Minutes

Date: August 6, 1990
Time: 9:00 a.m.
Place: Maryland Municipal League
Annapolis MD



Attending Members:

Dr. Harvey Alter, CHAIRMAN, U.S. Chamber of Commerce
Mr. Michael A. Gagliardo, NE Maryland Waste Disposal Authority
Mr. James F. Katcef, Food and Beverage Industry
The Honorable Regina J. McNeill, Maryland Municipal League
Dr. Dan K. Morhaim, General Public
Mr. John Moser (representing The Honorable Gerald W. Winegrad),
Mr. Ronald Nelson, Maryland Department of the Environment
Mr. George Perdikakis, Maryland Environmental Service
The Honorable Joan B. Pitkin, Maryland General Assembly
Mr. Thomas W. Redmond, Sr., Automotive Recycling Industry
The Honorable John W. Schafer, Maryland Association of Counties
Mr. Barry F. Scher, Giant Food, Inc.
Maryland State Senate

Members Absent:

Mr. Lawrence J. Hayward, Packaging Industry
Mr. Paul Hollinger, Packaging Industry
Mr. George T. Hudnet, Solid Waste Industry
Mr. Lenny D. Minutillo, Jr., Food and Beverage Industry
Dr. Michael J. Pelczar, Environmental Community

Others in Attendance:

Mr. Harry Benson, Maryland Department of the Environment
Mr. Bill Burroughs, Procter & Gamble, PolySource
Ms. Beryl Friel, Kent County Recycling Coordinator
Ms. Virginia Lipscomb, Maryland Department of the Environment
Mr. Chip MacLeod, Maryland Association of Counties
Mr. Michael Taylor, Maryland Environmental Service

Dr. Harvey Alter, Chairman, convened the meeting at 9:20 a.m. An incident in the Harbor Tunnel delayed some attendees. Dr. Alter distributed a handout from KAB on marketing recyclables. Two articles on public attitudes and recycling will be mailed to members to stimulate future discussion.

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Dr. Alter reported that he and Mr. Mike Pelczar, Professor, Emeritus, had met with the Dean of the College of Engineering and the Dean of the University College Graduate School at College Park. The Dean of the Graduate School will get back to Dr. Alter with more information on including solid waste management and recycling as part of a master's level program at the University of Maryland.

Dr. Alter advised the group that a plan is needed on how to develop and implement a recycling/solid waste management curriculum for K-12. The first step is to review existing curricula. Dr. Alter has requested a descriptive list of existing curricula and will share this with the group. He asked for two volunteers to make phone calls to discover how to proceed. Delegate Joan Pitkin stated that she and Senator Winegrad had made recommendations for changes in the environmental education law and this would fit right in. She volunteered for both of them. Dr. Alter added, in response to a comment from Councilman Schafer, that he would try to get feedback from those currently using such curricula. Delegate Pitkin and Senator Winegrad will report on the result of their efforts at the September meeting.

Mr. Harry Benson was asked about the location of the September meeting. He responded that the meeting will take place all day, beginning at 9:00 a.m., at the Wye Island Retreat on September 10, 1990. Since this date was not acceptable to several members of the Council, Mr. Benson called the Retreat and changed the date to September 17. The members will be sent a map with directions to the site. Giant Food will donate the party platters if someone can pick them up.

Dr. Alter pointed out that in order to keep topics for future discussion from being lost in the minutes he had begun to list them at the bottom of the agenda. He reported that the Council is required to submit an annual report which he felt should be due January 1, 1990.

Dr. Alter inquired about the existence of a #10 window envelope that is recyclable. He is looking for a source of supply.

The discussion then turned to the County Recycling Plans. A sign-up sheet was distributed for Council members to request a plan for review. Mr. Benson noted that MDE had very few extra copies of plans. He had brought these with him, in addition to extra copies of draft plans. He added that extra copies could be made but in order to minimize waste, this would be done if requested. Dr. Alter reiterated his concept of the importance of this review.

1. The Council should be intimately aware of county plans so that their recommendations are within the broad framework of reality;
2. Council recommendations will impinge on the planning process; and
3. Solid waste planning is spotty and uncertain. Faith should not be in the plan but in the process which is ongoing and must be understood.

Dr. Alter added that if the members could scan a plan before the September meeting, it would be helpful to have a general idea of their strengths and weaknesses. The review, in any case, should be completed by the October meeting.

Mr. Benson distributed a summary sheet of county activities and plans, review sheets used by MDE staff to review plans and a list of current county tipping fees.

The scheduled speaker, Mr. Hal McGaughey, Vice President, New England CRInc, then gave a presentation on a typical CRInc-operated materials recovery facility (MRF). CRInc stands for Container Recycling Incorporated. He explained that the company's existence is a direct result of the bottle bill which was proposed in Massachusetts in November 1981. The bill gave responsibility for collection of bottles to the distributors. As a distributor, they did not like the systems that were available and formed a company to develop their own system on November 3, 1982, the day after the bottle bill was passed. Since the bottle bill resulted in a good quality product, they attracted markets. The company then decided to expand into municipal recycling and started looking at available technologies for handling mixed recyclables. It found these were too labor-intensive and looked to Europe where they found the BEZNER technology in West Germany. They signed a contract with BEZNER as their American licensee. Rhode Island was their first contract. The MRF opened for full-scale operation - currently 200-220TPD (1 shift) - on May 1, 1989. The original design was for only 140TPD. Most jurisdictions tend to underestimate their recyclables according to Mr. McGaughey. Participation is always better than anticipated, he said.

The BEZNER system is a combination of conveyors, eddy currents and magnets. The Rhode Island program collects newspapers, mixed aluminum and tin cans, glass bottles and jars, and PET and HDPE. Though jurisdictions think in terms of tons per day, the system deals with units per day. It can only handle

a certain number of units. This is a problem when the weight of materials becomes lighter, as when the amount of plastic collected increases. Originally, Rhode Island estimated the density of their recyclables at 150 lbs./cubic yard while the actual density is 80 lbs./cubic yard. You can not solve this problem by just adding people, but need a flexible system. It is important for the jurisdiction and the operator to discuss what the goals are at the outset. Adding a commodity can add to operating costs and the operator will require compensation.

The BEZNER system is automated with two people at the front to remove unacceptable materials and the only other manual sorting is within the commodity., i.e., color sort glass. It takes approximately 15 minutes for a container to pass through the entire system. The system, which will be put in place in Montgomery and Prince George's Counties, will have many minor improvements which have been developed since the system was installed in Rhode Island four years ago.

Mr. McGaughey informed the group that BEZNER is looking at an automated system to color sort glass. The existing robotic system takes 2-3 seconds per unit. The new system with a ferris wheel-like operation can do one unit per second, which is the same as hand sorting. The goal is to make the system completely automated. The life of the system is 20 years, comparable to a landfill or any other system of waste disposal.

The fate of revenues from sale of recyclables is negotiable. Given a guaranteed input, the operator may keep the revenues and charge no service fee. Or there may be some service fee with revenues split, say 75-25 or 80-20, with the jurisdiction receiving the larger share.

The average size of a CRInc MRF is 80-130TPD or 40,000-53,000 square feet of operating space. Mr. Benson pointed out that CRInc also operates smaller MRF's similar in scope to those under consideration by many of the rural counties. Mr. McGaughey added that CRInc has three types of MRF's available: 80-100TPD, 50TPD, and 20TPD. There is also a mobile unit which processes 16-20TPD which is totally manual. CRInc is also available as an equipment supplier and to provide help with marketing of small quantities. Mr. McGaughey stated that Maryland is lucky that markets are fairly close. He said that further down the coast, transportation is more of a problem.

Dr. Dan Morhaim asked if source separation had any advantage over commingled. Mr. McGaughey said that it depends on the program. For 5-10,000 homes, you do not need a MRF. You just bring the source-separated materials to a consolidation point and market. He added that 50-60TPD of recyclables is the break point where it becomes too expensive to separate at the truck and a MRF is needed. McGaughey discussed factors which must be considered in any contract:

1. The tonnage to be handled;
2. Revenue split;
3. Revenues should not be tied to a dollar figure in the market place because you can not control this;
4. The greater the tonnage processed, the more willing the company is to share revenues. The downside is the company must be compensated for any loss. Compensation method should be specified in the contract; and
5. Contract should be written so that input builds to the expected level over time since the tonnage will not be there right away.

Mr. McGaughey was asked about plastics. He said from an operator's view point, you encourage as many commodities as possible but from a collector's view point, you add volume without adding much weight. He said the price paid for plastic is going up, especially for PET where the market is mature (Wellman, Inc.). The market for HDPE is not as mature and the price which started at \$.25/lb. has been going down. Mr. McGaughey added that he will never put in a granulator for plastic again. The soap in the HDPE froths the plastic adding so much air that you can not get enough weight on the truck. This greatly increases transportation costs. They had to stop accepting colored HDPE unless they change from a granulator to a baler. It is important to remember the landfill space that is saved when considering the value of plastic, he added.

Mr. Chip MacLeod stated it would be more realistic to negotiate by volume. Mr. McGaughey agreed but said that nobody is ready to do that yet.

Dr. Alter asked how the company copes with changes in the waste stream. Mr. McGaughey said that so far, there have been no changes in day-to-day operations as a result.

The status of the CRInc facilities in Montgomery and Prince George's Counties was discussed. Prince George's County is in final contract negotiations with CRInc. Another contractor is constructing the building. Montgomery County has a signed contract. CRInc is half way through the permitting process and expects to be operational by July 1991.

Mr. McGaughey ended by responding that a typical turn-key operation MRF processing 50-60TPD of mixed containers and 60-80TPD of paper (exclusive of the building) will cost approximately \$2 million. He will send more information and a video describing CRInc's operating MRF's.

Dr. Alter continued by proposing a discussion of regional MRF's in a future session. Mr. Michael Taylor, when asked about the mid-shore region's plans, responded that Talbot County will have the regional landfill. The location for a regional MRF is still in the proposal stage. Queen Anne's County has made a strong case citing its proximity to markets and ability to back-haul recyclables from the landfill in Talbot County. Dr. Alter reported on a regional plant in Connecticut which wanted compensation for hosting a regional facility. A regional facility can be a tough approach but may have economic and environmental advantages.

He added that BEZNER and CRInc are not the only contractors involved with MRF's. They are just better at marketing themselves. They have done a good job in Rhode Island. The technology has been around for a long time, however, how you put it together is an art.

The summary on the market data base survey will be given at the September meeting.

The next topic of discussion was bans, taxes, and deposits. Councilwoman Regina McNeill distributed two handouts from the Maryland Municipal League supporting bottle bill legislation:

1. 1990 Annual Convention resolution; and
2. Federal bill - H.R. 586 - which has been referred to the Committee on Energy and Commerce.

Some members of the Council were under the impression that the Maryland Recycling Act of 1988 prohibited counties from receiving any credit for recycling materials collected through a bottle bill. Mr. Ronald Nelson pointed out that this applied only to local legislation and not to any Statewide bottle bill legislation. Mr. John Moser pointed out that if you take bottles out of the recycling equation, you take 70-80% of the revenues. The pros and cons of bottle bills and the Council's recommendation will be debated at the September meeting.

In the case of bans, Dr. Alter reported that in almost every session of the House, and to some extent the Senate, a bill has been introduced regarding bans and they have always been buried in Committee. We should expect no action on the national level.

Dr. Dan K. Morhaim advocated full cost accounting. The cost of an item should include the ultimate cost of disposal. Currently, the manufacturer using excess packaging does not have to deal with the disposal costs. Aerosol can manufacturers do not have to deal with the costs of ozone depletion. He recommended that the Council draft a document addressing this issue. Dr. Alter responded that it has been years since most aerosol cans contained CFC's. He added that any tax must be large enough to overcome indifference and modify behavior. Which behavior do we want to modify? Mr. McLeod brought up the costs of landfilling. Dr. Alter wondered how tipping fees could be phased in to make them real user fees. He said that the typical family generates approximately one ton of waste per year. If the average tipping fee is \$48/ton (hypothetically), the charge to the homeowner would be \$4/month. This is not enough to motivate a change. In addition, this \$4 is swamped by the \$50-\$75/ton recycling collection costs. Mr. Nelson added that though recycling will extend landfill life, landfill operating costs will remain the same and may even increase. Mr. Michael Gagliardo added that there is no political impact of extending landfill life from eight years to ten years. In order to have any impact, you would have to make the costs far above what anyone would allow. Dr. Alter interjected that government has been in a habit of providing free disposal service.

The discussion shifted to how to display the true costs of disposal to citizens. Listing it as a line item in the budget, as in Montgomery County, does not do it. Dr. Alter added that Rockville indicates on the bill a separate charge for sewer, water, refuse disposal, and county collection charges. Mr. Thomas Redmond indicated that it is a matter of educating the general public.

Dr. Alter noted that adding recycling increases disposal costs. There are two collections. Revenues are unstable and it is tough to cover costs. Mr. Benson indicated this was true in the short term. Dr. Alter disagreed.

Mr. Gagliardo stated that a philosophical concept that NEMWDA has been discussing with counties is that there is a trade-off between source separation and mixed solid waste separation or processing. Most urban counties in Maryland are going to implement curbside collection. Nationwide environmental awareness is now high, but how long will this last? Will the future rely on commercial and mixed waste recycling? Dr. Alter indicated that over the next 5-15 years, curbside collection will

grow. However, as waste composition changes and adequate disposal capacity increases, interest in curbside collection will decrease. He emphasized that curbside collection is not egalitarian and rural areas and multi-family housing present problems. He added that history shows that interest wanes overtime. The Council must address how to overcome this, urged Dr. Alter. Mr. Benson interjected that the key element is a good quality end product. Where mixed waste is separated at a facility, the products can be very contaminated. They are, therefore, at a disadvantage in a tight market. Dr. Alter added that the inability to do complete front-end separation of mixed waste will drive curbside collection. This is a problem which may be solved in the future with more automated systems.

The discussion was brought back to a point made by Dr. Alter that disposal capacity would increase in the future. Dr. Alter explained that there is a perceived landfill crisis because politicians have been avoiding tough siting problems and shipping waste out of State and even out of the country. He expects a bill in the next session of Congress stating that if a State provides for disposal of 70% of its waste and plans for disposal of the remaining 30%, it can ban out-of-state waste. The bill does not require in-state disposal but other states are going to stop accepting out-of-state waste once the first does. Therefore, the states are going to have to provide disposal capacity in-state. There have been even more draconian measures introduced in the past in the Senate. This is a political reality which should be useful at the county level.

Another point brought up by Mr. John Schafer was the fact that the State mandated recycling and provided no funding. Mr. Nelson pointed out that the legislature provided no funding and should reconsider this fact.

The meeting was adjourned at Noon. The next scheduled meeting will take place on September 17, 1990 from 9:30 a.m. to 4:00 p.m. at the Wye Island Retreat.

Governor's Advisory Council on Recycling

State of Maryland

Agenda - September 17, 1990

Note: This meeting will be all day, held at the DNR facility on Wye Island. Check directions!

- 9:00 a.m. Convene, Self Introductions and Adoption of Minutes
- 9:15 a.m. Continued Discussion of Bans, Taxes and Deposits
Discussion of Beverage Container Deposits and Recycling
- 10:45 a.m. Continued Discussion of Establishing a Markets and Marketing Database -
Conclusions:
 - State interests - Ron Nelson
 - City and County interests - Regina McNeil & John Shafer
 - Private Sector Interests - Tom Redmond
- 10:30 a.m. Update on Review of County Recycling Plans
Staff Review
- 11:00 a.m. Report on K-12 School Agenda
Joan Pitkin
- 11:30 a.m. Are there opportunities for replacement of packaging?
- 11:50 a.m. Old Business
Staff report on pending Executive Orders
- 12:00 n. Lunch
- 1:00 p.m. Re-Convene for Discussion of Future Plans
- 1:00 p.m. Determining the Economic Feasibility of Recycling Plans
- 1:30 p.m. New Business and Future Topics
 - new construction requirements for recycling
 - drivers for phasing in user fees
 - recycling without changing current practices in SW management
 - recycling as an economic development tool
 - promoting regionalization
 - CONEG waste reduction recommendations
 - participation in southeast waste coalition (Maryland is a member)
- 2:30 p.m. Re-doing the Work Plan for 1991 - *Bring your copy!*
- 3:30 p.m. Adjourn

Governor's Advisory Council on Recycling

Minutes



Date: September 17, 1990
Time: 9:00 a.m.
Place: DNR facility on Wye Island

Attending Members:

Dr. Harvey Alter, CHAIRMAN, U.S. Chamber of Commerce
Mr. Michael A. Gagliardo, NE Maryland Waste Disposal Authority
Mr. James F. Katcef, Food and Beverage Industry
Dr. Dan K. Morhaim, General Public
Mr. Ronald Nelson, Maryland Department of the Environment
Dr. Michael J. Pelczar, Environmental Community
The Honorable Joan B. Pitkin, Maryland General Assembly
Mr. Thomas W. Redmond, Sr., Automotive Recycling Industry
The Honorable John W. Schafer, Maryland Association of Counties
Mr. Larry Hayward, Amoco Corporation
The Honorable Gerald Winegrad, Maryland State Senate
Mr. Paul Hollinger, Packaging Industry
Mr. Michael Taylor, Maryland Environmental Service
(Representing Mr. George Perdikakis)

Members Absent:

Mr. George T. Hudnet, Solid Waste Industry
Mr. Lenny D. Minutillo, Jr., Food and Beverage Industry
The Honorable Regina J. McNeill, Maryland Municipal League
Mr. Barry F. Scher, Giant Food, Inc.

Others in Attendance:

Mr. Harry Benson, Maryland Department of the Environment
Mr. Glenn Dodson, Maryland Department of the Environment
Mr. Chip MacLeod, MACO

Dr. Harvey Alter, Chairman, convened the meeting at 9:45 a.m. The meeting opened with a discussion of the costs and benefits of deposits and buy-back programs. The Council is not in agreement on this issue with varying degrees of sentiment for and against the use of either.

It was suggested that the best ways to stimulate recycling is to give people incentives to recycle. John Schafer stated that people are picking up cans because there is profit in them and they are easy to collect. Senator Winegrad pointed out that New York is having windfall profits with their program. Dr. Alter suggested that an effective recycling program is more efficient. Senator Winegrad stated that no state that issued a bottle tax has ever repealed the tax. Dr. Alter added that 30 states have voted against having a tax in the first place. Joan Pitkin added that some states passed similar laws. Ms. Pitkin added that people are in favor of mandatory recycling. There was disagreement on this point because people will generally answer "yes" if asked this question. The best way to get an honest answer would be to ask if their neighbor would say "yes."

Mr. Ronald Nelson stated that the Legislature must act quickly and decide what it wants to do concerning mandatory recycling, bottle taxes, etc. This must be determined before the counties put money into capital investments. These elements will determine where the counties will put their money. Senator Winegrad asked if there should be a deposit on batteries. Mr. Nelson asked Mr. Tom Redmond that if they were required to pay for batteries, would they collect them. Mr. Redmond stated that junk dealers would like to have a fund built into the price of the car.

It was stated that we need to create incentives to recycle and there is a cost of having litter; a cost to pick up the litter. Dr. Alter stated that there are various kinds of incentives that modify usual behavior of the things we can relate to. In California, they make their money available for grants. Additional money is paid into the State fund. For every glass or beverage container that is generated or brought into the State, the money is put into this fund. Each year, many of the non-profit groups put in proposals for the money. Dr. Alter added that in California, you go back to the store where you made your purchase. They are required to put up a redemption center. There is one redemption center for a certain percentage of people. His understanding is this is not happening because you have to rent space and if you are in a shopping center location, space is very expensive. The State has a buy-back value for every container. The redemption center must pay this. The idea of the redemption value is that if the return rate falls below a target, they raise the return value. Californians state that the system is such a mess you can not make heads or tails out of it. Glass is a surplus in California. The other states, however, have a direct loss to the consumer, cost of the recycling centers, cost of the bottles, cost of the landfill, and the cost of disposal. You have to maintain the waste system.

Dr. Morhaim asked what the incentive is to take a glass bottle to a recycling center if you do not get value for it. It was discussed that most people think recycling is good. Right now, the motivation is high among people. It was stated that some girl scouts were literally fighting over picking up bottles and cans in public parks for the deposit. Senator Winegrad stated that the majority of people want to recycle. What the people are saying to the government more than anything is give us curbside. They want it to be as easy as possible, they just want to put it outside and have it picked up. Government would rather have drop-off centers because they are cheaper, one day per month with limited hours of operation. Whether bottles and cans are recycled either 1% or 100%, it is a recovered amount from solid waste. Something that does not deteriorate or break down in landfills, creates problems in incinerators and that if the bottle bills have been effective in nine states that the deposit is something we should look at. The second comment would be if we looked at each part of the solid waste stream, counties might go for just one high-bulk item, like composting. Finally, he stated, nothing works as well as an economic incentive. People are picking up bottles and cans because of deposits. They are not out there picking up cardboard or plastic containers. Reducing solid waste litter is one of the small parts of it. It was discussed that having a redemption center that accepts all recyclables gives people an incentive to bring their waste in and get money. It does not become competitive, it becomes something that draws people that otherwise would never recycle into the redemption center. It was agreed that curbside recycling will not replace recycling centers entirely, particularly in rural areas you need redemption centers. Curbside is never going to include all households. John Schafer stated that each county needs to go with volunteerism to make 15-20%. Many homes are too small to have separated recyclables. Senator Winegrad stated that the major problems with high-density population areas is that they do not have the room to store 100 bottles. It creates a health problem and it attracts roaches and rodents. It was stated that the bottle industry has done a great job of recovering glass even before any laws for recycling. Now people are talking about a bottle bill. It does not seem fair. The most expensive method of solid waste management is collection. Seventy percent of total cost is collecting. There was a study conducted between New York and Vermont. One large state and one small state, one rural state and one mixed economy state. The conclusion was that it costs 2 1/2 to four times more for recycling programs than it does with states that have deposit legislation. It was agreed upon that we need to make it worth the public's while to recycle.

It was stated that resource reduction is in direct conflict with recycling. The Council agreed to talk more about resource reduction and motivations to resource reduction.

The Council discussed whether mandatory deposits on beverage containers fit into an integrated system of solid waste management and recycling. Senator Winegrad stated that nine states chose mandatory deposits and they have not been appealed. Having conveniences built into the system and having people participate are essential in getting recycling to work. Once people begin to participate and they are encouraged and rewarded, more people will do it because of a sense of obligation. Encouragement and positive thinking are essential to improve our environment. Dr. Alter added that the key to these things is not that we are in favor, but is your neighbor in favor of recycling.

It was agreed upon that if we get the public to recycle and meet this 20% goal, we better do something ourselves, with our delegates and county offices. With technical training, market development and a continuation of training recycling can succeed. We need to provide money to help the counties do data base and the technical market developments.

Mr. Chip MacLeod and Councilman Schafer reported on the "Follow-Up Report of Advisory House Subcommittee on the Role of State and MDE's Office of Waste Minimization and Recycling (OWMR)." The initial report was issued to all jurisdictions for comment. A copy of these findings may be obtained by contacting MDE. Some of the findings included recommendations of OMWR's role in recycling implementation, and some varied general comments. After this presentation, Mr. Nelson commented on several points. He stated that MDE will review recycling plans. The State does not know where and what the markets are at this time, and many counties do not want to share this information. He added that for this reason, a data base may not be effective because the State would like to see counties with stable long-term markets and not moving from one to another. Mr. Nelson stated that the State is looking to bring markets to Maryland and to establish a system for helping small counties. Mr. Redmond added that the private sector would like to receive information on the grants. Mr. Nelson stated that the counties are studying two issues; what to count, and how to count recyclables. Dr. Alter added that two questions must be answered first; what information is needed, and how does it get delivered?

Senator Winegrad had information from Pennsylvania on their recycling practices. He also read from an article about computer data base uses. Mr. Michael Taylor interjected that the "Maryland Recycling Directory," distributed by MES, provides much of the mentioned information.

Mr. Nelson stated that it is safer for a municipality to fix into a market rather than to play in the market like a stock broker. Dr. Alter added that counties need legislation to give them help in avoiding some of the loop holes of contracts. It was stated that the biggest problem that counties have with developing any system is funding. There was a discussion of the various funding mechanisms that are available to counties, landfill fees, etc.

Joan Pitkin reported on recycling in schools. She reported that Gary Heath and herself spoke to most of the school systems and approximately 15% have recycling. Teachers commented that the children are enthusiastic, they just need the opportunity to recycle. MES has given grants to schools and has set up used oil recycling programs. Dr. Alter stated that he is worried about the accuracy of the information used in school curriculums. Suggestions for education and promotion were made by many of the Council members (writing workshops, recycling month, etc.). Pennsylvania was discussed as a major source of information about school curriculum. Dr. Morhaim has placed over 2,300 photos in schools for environmental awareness. Mr. MacLeod stated that telling kids where they can get involved locally is the most important aid that we can provide. One member suggested that students be used in recycling centers. It would be productive for the community and good for the kids. Ms. Pitkin agreed to write a report on this information.

The Council moved to a discussion of economic feasibility of recycling plans. Dr. Alter stated that it is most important that counties use the same counting system. Mr. Nelson stated that MDE is going to develop a uniform reporting form and will be developing regulations concerning what can be counted. There is much disagreement in the counties. Many times, materials are counted two or three times. Private companies do not want to tell the State what they are doing. Dr. Alter stated that materials that traditionally are entered into the solid waste stream should be counted. Mr. Nelson added that the State will work with counties to determine what they can count.

The Council moved to a discussion of future agendas, the work plan, and the role of the Council. Senator Winegrad requested that sections on tires, appliances, and deposits be added to the work plan. The members were asked to prioritize what they wanted to discuss under the "New Business and Future Topics" of the agenda.

The Council began a discussion of other states' programs. It was stated that Wisconsin is looking to prohibit 13 recyclable items from landfills by 1995. Much of their money goes into market development, grants, manufacturer rebates, loans, etc. Senator Winegrad questioned why Baltimore can not curbside recycle. Cincinnati, Ohio, has 100,000 people curbside recycling. Dr. Alter suggested that we should target people who want to recycle and not expend resources on groups that traditionally do not recycle. It was mentioned that Southeast Waste Coalition received a grant for solid waste management. Mr. MacLeod agreed to bring more information on this to future Council meetings.

Dr. Alter stated that he has not received feedback from the two letters that the Council sent to the Governor. He also asked for comments on the style of the work plan. Ms. Pitkin stated that the Legislature will not react until the Council reacts on recycling topics. For future meetings, Dr. Alter recommends that the Council discuss fiscal matters before anything else.

The meeting was adjourned at 3:30 p.m. The next meeting is scheduled for October 1, 1990 from 9:00 a.m. to 12:00 noon at the Maryland Municipal League.

Governor's Advisory Council on Recycling

Minutes

Date: October 1, 1990
Time: 9:00 a.m.
Place: Maryland Municipal League



Attending Members:

Dr. Harvey Alter, CHAIRMAN, U.S. Chamber of Commerce
Mr. Michael A. Gagliardo, NE Maryland Waste Disposal Authority
Dr. Dan K. Morhaim, General Public
Mr. Ronald Nelson, Maryland Department of the Environment
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Members Absent:

Mr. Lenny D. Minutillo, Jr., Food and Beverage Industry
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Mr. James F. Katcef, Food and Beverage Industry
The Honorable Joan B. Pitkin, Maryland General Assembly
The Honorable John W. Schafer, Maryland Association of Counties
Mr. Larry Hayward, Amoco Corporation
The Honorable Gerald Winegrad, The Maryland State Senate
Dr. Michael J. Pelczar, Environmental Community

Others in Attendance:

Mr. Harry Benson, Maryland Department of the Environment
Mr. Glenn Dodson, Maryland Department of the Environment

Dr. Harvey Alter, Chairman, convened the meeting at 9:45. Dr. Alter explained that the minutes of the last meeting will not be available at this time due to the many meetings and events that the Office of Waste Minimization and Recycling took part in since the September 17, 1990 meeting.

Mr. Nelson stated that the week following the last session MDE conducted a whole day session devoted to recycling at the State's periodic Local Government Assistance Conference (LGAC). The LGAC was attended by County Department of Public Works people, planners, Health Departments, Environmental Department people, and many of the military facilities. There were over 100 people in attendance. The day was devoted to recycling with a

panel discussion at the end of the meeting. Some of the counties participated and talked about some of the issues that were discussed in the LGAC meetings. There was a discussion of regulations on what will count as recycled material. MDE believes that recycling must make economic sense. Whatever the counties do should make sense and they should not be doing things just to meet State goals. We also talked about how to deal with volume percentage of reduction. Last week, the whole meeting at ELG was devoted to the issue of solid waste management as well as recycling. This group is made up of the environmental community and citizens associations, academia, etc. Mr. Nelson then referred to Mr. Benson to expand on these and other projects being implemented by the Office of Waste Minimization and Recycling.

Mr. Nelson explained that the LGAC was targeted toward recycling and solid waste people, and as a result, 20 of the 24 County Recycling Coordinators attended.

This was the first time that we all gathered to discuss the Maryland Recycling Act. Two issues discussed were,

- 1) What qualifies under the law? Mr. Sandy Shapiro, Cambridge Scrap and Metal, talked about that issue. Many county coordinators responded with questions regarding:
 - A) scrap materials, because under the law, it does not qualify; and
 - B) entering materials back into the market, i.e., back yard composting.
- 2) The other issue concerned how the State is going to require the counties to verify tonnages. A committee was put together to develop a form for processors and recyclers to use. It will prevent double-counting and provide one standard form to make it easier for the counties to provide documentation. On October 11, 1990, the Governor will be going to Phoenix Recycling. Immediately following, through the generosity of Giant Food, the State received igloos that we are establishing as a State-operated drop-off program. This will utilize State Highway, private sector, and MDE vehicles to service the drop-offs in Carroll, Baltimore, and Harford Counties. If there are any further questions, please contact MDE. The Office of Waste Minimization and Recycling was involved in was the Maryland Executive Branch Recycling meeting. Secretary Walsh, Mr. Perdikakis, Mike Gagliardo, and representatives from DGS and DEED attended. The last meeting was September 20, 1990 the next will be on October 17, 1990.

This is an opportunity for the Executive Branch to coordinate so as to avoid duplication.

Dr. Alter referred to the LGAC and the report from MACO and MML with respect to coordination. It is evident that with over 100 people at LGAC that people want to do this. What can the Council do to help encourage this? Mr. Nelson stated that everyone wants to get into the act in some fashion. Some quick in and out programs, some programs that bring recycling to the forefront, but end and there is a pick up. He referred to a paper article about Valu Food working with Alcoa to recycle in schools. The money will go into the Chesapeake Bay Foundation. This effort is cutting into the recycling of white collectables. His concern is the lack of coordination and the impact to counties trying to meet their goals. The more groups that get involved, the more difficult it is for the counties to count on some of these profits. Mr. Nelson suggested that some of these problems be brought before the Council and discussed.

Mr. Nelson gave an example of what is being discounted in counties. The State will have difficulty determining how involved private industry is because in many cases, they have no desire or intention of reporting this to the State. The counties are counting on these tonnages and they have competition in their jurisdiction.

Mr. Hollinger asked why do we have to compete? Mr. Nelson stated, with a request to George Perdikakis to interject, that if counties are trying to locate markets and lock the market in for the long-term, then once you are in the business of solid waste, it is not a matter of not wanting more solid waste, but a matter of needing it to function. If everyone is competing, these revenues may go somewhere else. Mr. Hollinger asked why Giant can not give its paper to the counties. Mr. Nelson replied that if the Chesapeake Bay Foundation, for example, is involved with Valu-Food in a collection program and the school children are going to collect it, then the money is going to the Chesapeake Bay Foundation and not to the counties. This will go out of the waste stream into the Bay Foundation as a non-profit donation. The counties are trying to lock in a contract with a guaranteed input and then they will not have adequate tonnages anymore.

Dr. Alter stated that if all kids take their cans to school, then the school benefits, and recycling benefits, but the county has accounted for these recyclables and they are gone. This will make costs go up. Also, there is only so much to recycle and you have many parties trying to take part which will cause a shake-up and companies will get out of recycling for a variety of reasons. When they give up on recycling, it will all come back

to the county. If the county begins to accumulate more and more, they will have to restart a program. This is costly.

Mr. Perdikakis added that this will only be recognized when the counties run these projects as enterprises and whatever they spend must be recovered with a tipping fee. They are going to have to publically acknowledge that there is no General Fund or any other fund going into solid waste management. The county is going to run it and they are going to charge whatever it takes to accomplish this. Communities will realize that they will have to work with the county government. The small counties may have to hire private industry. Many counties support solid waste management through General Funds and they will not charge a tipping fee because voters will not support it. That is the wrong approach.

Dr. Dan Morhaim stated that the reality throughout the State is that there is limited recycling; we should not talk about these programs as if they were mature programs. This is still a hypothetical problem. There are not alot of opportunities for recycling. He stated that there is no choice. People are collecting and keeping things in garages because they do not know where to put it. We are not to the stage of worrying about too many choices.

Mr. Bill Burroughs stated that not a week goes by when he does not get a call from a small entrepreneur that wants to know how he can get into the business and also from people who wanted to put in 50 to 100 recycling centers in churches, etc. They would provide the service but would sell the materials. This is on a larger scale then mentioned "one time events."

Mr. Nelson pointed out that since Maryland passed the Recycling Act, most people have lost track. It is no longer a fun and glitzy thing to do. It is now a mandatory business to get into. The Legislature is ready to change the recycling laws because people are recycling, forgetting that they set 1994 as the date for getting heavily into the recycling business. It is unfortunate that we may have over one million people by July involved in curbside recycling, and have an opinion here that there is no recycling. If we do not believe it, no one is going to believe it. If you keep interferring with the market and do not have some kind of control, recycling is not going to work. Mr. Hollinger asked if Mr. Nelson can give the chain of events, for those who do not know what happens to waste once it gets to a collection point.

Mr. Nelson said that there are all different set-ups that handle recycling. Giant Food will have something different than other places. Mr. Barry Scher, of Giant Food, agreed.

Mr. Perdikakis explained that aluminum is a very expensive commodity; glass is very hard to get high quality, specific colors, etc. You do not have that much money coming in. Newsprint, nobody wants. Mixed paper, some companies take this with the hope that they get enough cardboard which has a value of \$33 or \$34/ton. But no one is making a great deal of money. The entrepreneurs are trying to survive and anticipate that this is eventually going to make money. Newspaper is down. In Montgomery County, the person who collects newsprint is now saying he can not take it because the price is low. Overlea High School, which the Governor kicked-off a recycling program, is doing great but they are not making money.

Mr. Hollinger asked what happens to the recyclables. Mr. Perdikakis said they are getting rid of them but sometimes at a loss. Dr. Alter added they go to brokers. Aluminum goes to Richmond, steel goes to Bethlehem Steel (gross \$50 per ton minus transportation).

Mr. Perdikakis reported that at the Texas Facility, MES has been working for a month to find out the right size for mixed glass, but the value is low. In Baltimore County, the glass goes into a landfill. If you do not take the volume out of the stream, then we reduce its volume and put it in a landfill. If we put it in the landfill, it costs us \$40 because that is what we would charge businesses for bringing us trash. We want this material out of the stream to save the space.

Dr. Alter proposed that we move on and think about what is the highest value use of each material. There will be a time when the highest valued use will be burning or burying.

Mr. Nelson explained that the Environmental Matters Committee (EMC) asked MDE to brief them on what the State is doing in regards to recycling. He explained that they had a few comments concerning why we are not doing certain things fast enough and some discussion about if the State is going to propose additional legislation, container taxes, or a bottle bill. He stated that he is not at liberty to discuss the proposed legislation before the Governor is notified. A delegate at the EMC stated that the bureaucracy was holding back the development of a de-inking plant that was promised to his jurisdiction from Southeast Paper. Southeast was testifying with the newspaper industry saying that they would do it if the State did not pass a newspaper bill. The State contacted Southeast Paper and MDE has a letter from them stating that they studied the market and it would not be feasible. EMC will be inviting the Governor's Advisory Council to speak to them. Mr. Perdikakis dispelled a rumor that he was supporting a bottle bill. Dr. Alter stated that he will be writing a letter to the Governor on this subject and that he will submit it to the GAC for review and comment.

Mr. Hudnet made a statement that newspaper, in many circumstances, is bundled and sent to Baltimore RESCO for incineration. Dr. Alter added that you must have markets first, then the plan follows. Municipalities generally want to reduce costs so they look for single long-term high-priced markets and the highest value use of each market. Sometimes, this is incineration for paper. This is hard to sell when it does not count for recycling. Mr. Hollinger added that the only way to know the best way to dispose of a waste is to do an environmental impact statement of the waste stream. Mr. Perdikakis stated that we can not afford to have newsprint go into incineration plants. Dr. Alter stated there is so much going on in private sector recycling that is not counted. He stated that the recycling plans are made with a great deal of enthusiasm, but not much knowledge of what is in their waste. Dr. Alter added that many counties and municipalities state that if you recycle you avoid the cost of disposal (if the tipping fee is \$40 then you avoid \$40). This belief is not true because the avoided cost is applied and you are ignoring that there are fixed costs. Counties are using a paper transfer for accounting, like depreciation. In the future they will go into deep financial depression. They are crediting themselves with a savings that they are not getting.

Mr. Perdikakis stated that this may be true with urban counties, but Baltimore City/County, and Montgomery County, which have to pay landfill costs, the avoided cost becomes greater than what they pay now. When Baltimore City/County say they are spending \$50 million for solid waste, it does not include cleaning streets which is supported through motor vehicle revenues, etc. Baltimore City has no bonds outstanding for solid waste with the exception of BRESKO.

Mr. Gagliardo stated that the \$61 tipping fee in Baltimore County is set so that costs cover expenses plus they are setting aside a fund for future landfill closings. Baltimore City/County are not working with this system. Mr. Perdikakis refers to a document that states that it costs \$161 ton to operate Pulaski Incinerator. Dr. Morhaim stated that the State may be able to encourage markets to develop in Maryland with industrial revenue bonds and other support.

Dr. Alter used a diagram to explain what happens economically as each new firm is opened. The curve is a step function. Supply is constant, but not on the same function and this causes uncertainty. Mr. Burroughs interjected that the State can improve recycling by stating that facilities must be sited, NMBY does not work. Mr. Nelson replied that the Legislature will not let this happen. Mr. Burroughs stated that Florida does this and when his company went there, Florida gave them a package to ease them into business. Dr. Alter commented

that there are things that the State and counties can do to alleviate resistance to plants. Mr. Hollinger asked, even if the de-inking plant capacity is there, is it better to recycle papers vs. cutting down trees to make paper and then burning it afterward. Mr. Perdikakis added that a de-inking plant will come to Maryland if the price of crude oil keeps going up. Mr. Hollinger stated that if the price of energy goes up then it may be better economically to burn paper for power. Mr. Perdikakis referred to an idea of Dr. Alter and himself to burn tires to produce steam for a de-inking plant. Mr. Burroughs added that if the price of recycled paper were lower than virgin paper then this would be a driving force to put plants in. Presently, there is a negative driving force and the only thing that moves people to recycle paper is legislation requiring a percentage.

Dr. Alter suggested that with newspapers, the capacity is full so this causes the price to go down along with the fact that we are competing with Europe for Asian markets. He added that legislation in Congress states that there should be a system of tradeable permits for recycled credits on newspaper and we are going to count imports. Fifty-five percent of U.S. newsprint comes from Canada. He stated that it is impossible to keep an accurate count. Dr. Morhaim suggested that we look at this bi-regionally. We must locally process our own trash. He added that academia should put an emphasis on developing new processes for recycling. Dr. Alter suggested that before developing new processes, you first must look into what has been done and what you are faced with. Dr. Alter addressed the suggestion of source reduction, by stating that people continually complain that they do not like plastic and want alternatives.

Mr. Hollinger asked, "would we be better off as a country if we went back to a returnable bottle system?" He stated that from literature 8 to 10 uses from a bottle is the best alternative. Dr. Alter disagreed saying that with returnables you have the most costly variable to contend with, which is transportation. He also offers to provide Mr. Hollinger with information on the environmental impact of various transportation systems. Dr. Alter moved to the agenda item related to county recycling plans.

Mr. Scher reviewed Frederick County's plan stating that Frederick County, with its 150,000 population, has not developed anything new. Their initial concern is funding and markets. They are looking to develop regional markets. They are landfilling, limited recycling, and studying incineration and mechanical separation. They handle white goods, paper, tires, and aluminum. They are studying sewage sludge and land-clearing debris. To meet the State's goal, the county is going to have a pilot project in July 1990, which will expand to Phase II in

January 1992, then county-wide by July 1997. Long-range plans are to have a central processing facility. The counties desired methods of funding are to increase tipping fees, look for State assistance, use General Funds, and implement a special tax. Their recovery percentage will be 40%.

Mr. Gagliardo reported on the three Maryland shore programs; Caroline, Queen Anne's and Talbot. These counties are examining planning on a regional basis. The two biggest concerns are markets and funding. They will phase in the program with continuation of the existing programs (white goods and yard waste composting). Yard waste composting is very practical because if the county was forced to make use of the compost, then it could always be used for municipal spreading. They will begin community recycling with drop-offs because not many places are conducive to curbside drop-offs. The county can only process a limited amount of recyclables without an established facility. These three counties share a landfill which will open on October 15, 1990. They are investigating a regional drop-off facility and a regional marketing approach. Mr. Perdikakis added that the most difficult aspect was getting the three counties to work together and to get them to support this project as an enterprise. Recycling is part of solid waste management. MES is in the process of citing a landfill facility closer to Kent Island to be closer to the markets. It has been very difficult for MES to convince counties to support this facility through fees and not through the General Fund. It took 2 1/2 years from concept agreement. Dr. Alter emphasized that it takes time for these projects to develop. Mr. Perdikakis pointed out that this took total State coordination. MES floated a bond backed by the State. MDE issued a permit within one year. He stated that there is not another department in the country that could do this. The State politicians also supported this project.

Mr. Tom Redman, Automotive Recycling Industry, reported on Somerset County. This plan was prepared by MES. The data on the waste stream composition was limited. The 1987 estimates were made in yards. The only landfill has no scale. The waste composition was estimated using National Waste Stream Composition Surveys from other jurisdictions with similar populations and demographics. Currently, there are no tipping fees. The new landfill may have a fee. They have no plans for curbside collection, with possible drop-off sites for collection. It was Mr. Redman's opinion that Somerset County feels that they are already in compliance with the Maryland Recycling Act. The plan stated that 19% of the waste is being recycled presently from crab-picking operations and poultry hatchery waste, which is being used for fertilizer and pet food. Mr. Perdikakis stated that MES surveyed Somerset's waste and found that they missed their daily estimations by 500%. Between May and September, instead of recovering 50-60 tons, they received 130-140 tons.

Mr. Perdikakis also added that while this law is not the best law ever passed, he does support Somerset in their statement that they are in compliance with the law. Mr. Nelson stated that MDE will not comment on the issue of acceptance at this time because it would not be proper until it has been discussed further. Dr. Alter reviewed very quickly some of the items that can and can not be counted. Mr. Perdikakis questioned whether burning tires counted. Dr. Alter explained that he felt it did not because he extrapolated from Waste Energy and from the Charles County report. Mr. Nelson interjected that Charles County is different in that they have passed an ordinance against a pyrolysis plant. Mr. Gagliardo stated that tires may fall into the same category as RDF. Dr. Alter stated that the laws, regulations and rules can not be specifically written. They must leave room for negotiations. Mr. Perdikakis added that 70% of crab waste that Somerset County processes is from other counties. He asked if the State does not allow this waste to be counted then we seem to be sending signals that Somerset should not accept this waste. This would not be consistent with what is the consensus of the Council which is regionalization. Mr. Alter stated that if the goal of the law is to reduce the waste destined for the waste stream, then you should exclude wastes that would not enter the waste stream. Mr. Redman refers back to the Somerset Plan commenting that the plan lacks enthusiasm and only projects a 2% increase in recycling. The only market that predicts a profit is corrugated cardboard with zero profit for aluminum or glass. They have a population of 27,000 and a budget of \$500,000. Mr. Gagliardo stated that in Baltimore City/County solid waste is a problem. In Somerset County, people take care of their own waste on the farm just like other rural counties. There is also a lack of basic knowledge on what the waste stream is and the quantity. He added that all counties are counting on commercial recycling. Commercial recycling will continue as long as the economics are right. He added that Mr. Nelson and MDE will be developing a reporting form so this can be documented. The two big issues will be (1) how to document recycling, and (2) how do you expand recycling.

Mr. Alter stated that with the differences in each county (i.e., level of sophistication) and the uncertainties, MDE's job will be difficult. Coming up with the reporting form will be difficult. Dr. Alter commented that his real recommendation is patience and wait for experience. Mr. Perdikakis stated that the law was developed to allow the large counties to benefit from resource recovery facilities. Nothing has been done for these small counties and adds that Somerset and Garrett are doing great jobs considering the economics of the counties. Both Somerset and Garrett are about to put state-of-the-art landfills into use. He also stated that the Governor should be told that the law is good but it is unfair to many counties.

Dr. Alter referred to Dr. Morhaim's request that more markets be developed and stated that the industry has gotten bad publicity in the past because plants have opened and then failed. RDF still has a bad reputation since 1975. This is something that recycling must fight.

It was decided that the Council will schedule trips to BRESCO, Texas, a MRF, etc. The meeting turns to the issue of fund raising.

Dr. Alter related this issue to user fees, stating that not all counties utilize user fees. He added that the group should work out what is necessary in terms of qualitative principals.

Dr. Morhaim referred to the shortfall in the law that granted no funding. Dr. Alter reminds everyone that the original law included a funding mechanism that was not written very well and received little support. Mr. Perdikakis wanted to remind everyone that the Governor asked, on supplemental appropriations last year, the General Assembly to supplement some recycling projects but they were not approved.

Dr. Alter agreed that a user fee that is self supporting is the best answer. He pointed out that the counties may need interim help and the council should discuss how a county transitions from a zero user fee to a realistic user fee. People will experience "sticker shock". Dr. Morhaim suggested that sticker shock may be needed to cause people to act. Mr. Benson mentioned as an example Beryl Friel, Kent County. Kent County never had a tipping fee. This could be a test case to study, especially with regards to illegal dumping. Mr. Gagliardo stated that in Montgomery County, transfer stations allow county residences to dump for free with less than 500 pounds. Also, they have a drop-off center at the transfer station that people who live in areas where the County does not provide residential service can drop-off for free. Mr. Redman suggested that Somerset County with 25% unemployment, could establish their own entity and use it as an employment stimulus and make money the same way the private sector does. Mr. Gagliardo suggested that Somerset County, with its many small waste collectors, may have to spend the profits clearing up illegal dumping. Mr. Hollinger suggested that each resident should get a card that will be punched every time you bring recyclables to a center. If the person filled in his/her card, then they would be exempt from the pick-up fee. There was an agreement that many different ways to accomplish this goal exist. In the future the council will discuss this topic. Mr. Nelson stated that two kinds of funding legislation will be examined this year (1) tipping fees, and (2) a Statewide container tax. A bottle bill may be looked at. He added that the major thrust will be a container tax. Small counties will have difficulty supporting themselves with user

fees. Dr. Alter asked if the State has a role in redistributing funds for recycling. Mr. Nelson suggested that this is why the State has created MES and NEMWDA which can develop enterprises. Mr. Scher stated that solid waste will always cost the country money. It will take State money to sustain many programs especially in small counties. Mr. Gagliardo addressed the question, "Who do you collect money from and how is it redistributed?" He stated that there is a State Water Quality Facility Fund which uses a revolving fund. A bond issue is set up to support itself and grants and loans are made to local governments to plan construction of waste water facilities. He suggested that this may be something that could be used to fund recycling and negotiate payment plans. Mr. Nelson pointed out that the initial money for the Water Quality Fund was federal money. Dr. Morhaim suggested that everyone look at recycling in the long run, just as they have done with the Bay and air. These projects cost but the public thinks they are worth it.

The meeting was adjourned at noon. The next scheduled meeting will take place on November 13, 1990 from 9:00 a.m. until 12:00 noon at the Maryland Municipal League.

Governor's Advisory Council on Recycling

AGENDA

Date: Tuesday, November 13, 1990
Time: 8:30 a.m.
Place: BRESCO Waste-to-Energy Facility
Conference Room
1801 Annapolis Road, Baltimore
(Directions and map attached)



8:30 a.m. Convene, Self Introductions and Adoption of Minutes

8:40 a.m. Tour of Waste-to-Energy Facility
George Hudnet, Wheelabrator
Discussion Topic "How does waste-to-energy fit with materials recycling?"
Mike Gagliardo, NEMWDA
George Hudnet, Wheelabrator

10:00 a.m. Transportation to Phoenix Recycling

10:40 a.m. Tour of Phoenix Recycling's materials recovery facility

11:20 a.m. Transport back to BRESCO

12:00 noon Adjourn

Pending Topics in Addition to Executive Order

The Following are in Order or Priority from the September Meeting:

- o recycling as an economic development tool
- o recycling without changing practices in solid waste management
- o new construction requirements for recycling
- o possible deposits on appliances, tires, lead-acid batteries

!!NOTE DATE AND LOCATION OF MEETING FOR THIS MONTH BECAUSE OF ELECTION DAY
- UNUSUAL DAY AND LOCATION!!

DIRECTIONS TO BALTIMORE RESCO
1801 ANNAPOLIS ROAD
BALTIMORE, MD
(301) 234-0808



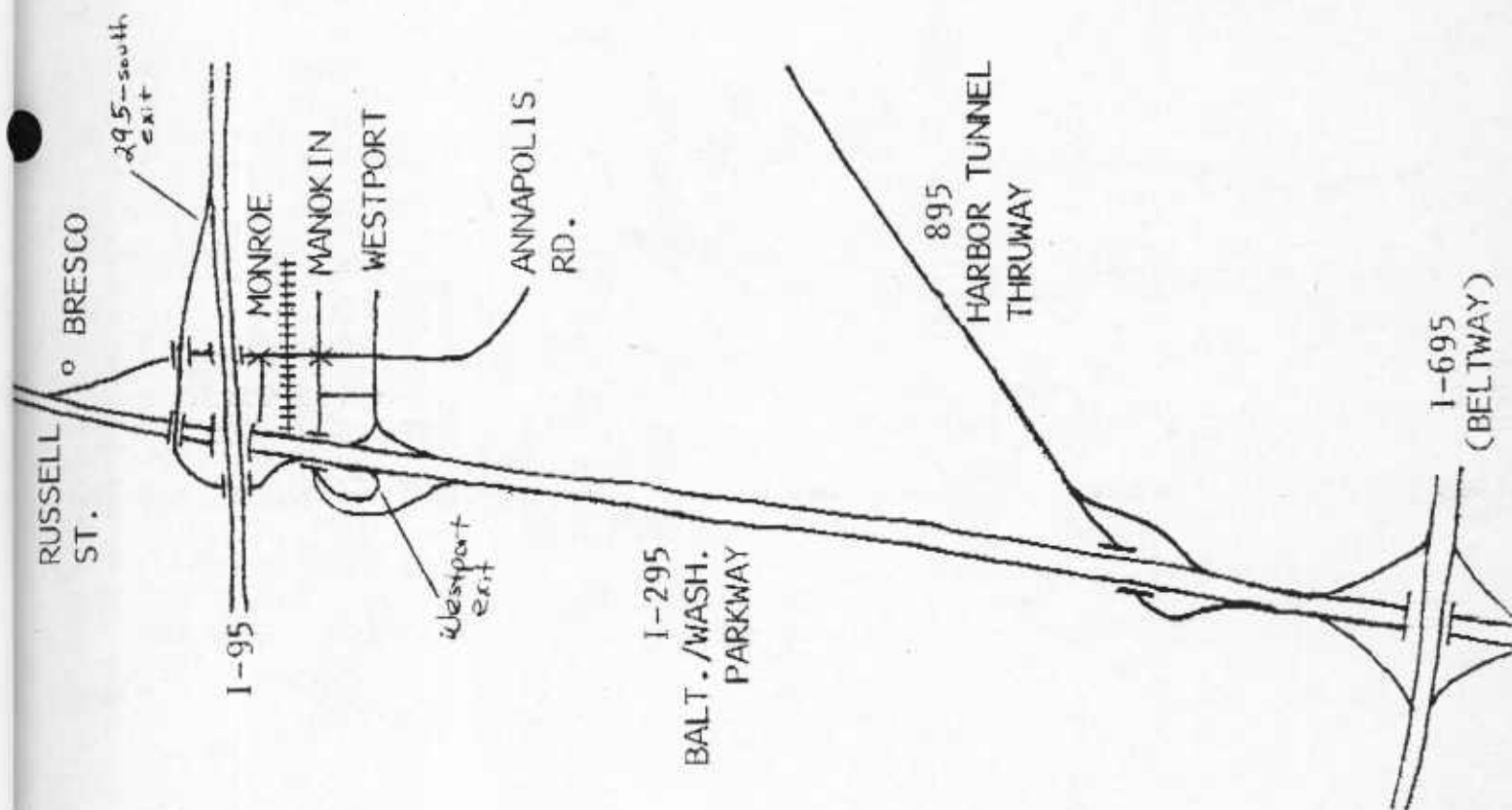
From Downtown Baltimore:
Take Russell Street-south. Exit at "Westport." At light, make left turn onto Annapolis Road-north. Travel straight through next light (Monroe Street). Plant is one block beyond on the right.

From Baltimore/Washington Parkway:
Take Parkway north into Baltimore City. Exit at "Westport." At stop sign, make left turn onto Annapolis Road-north. Travel straight through next light (Monroe Street). Plant is one block beyond on the right.

From Baltimore Beltway (695), East or West:
Take Exit 11-A, "Interstate 95-North, Baltimore." Stay on 95 for about 2 miles. Exit at "Russell Street." At bottom of ramp, make a right turn. Go straight through main entrance.

From Interstate 95-South:
Go through Ft. McHenry Tunnel. Exit at 295-south. Stay in right lane. Immediately exit at "Westport." At light, make left turn onto Annapolis Road-north. Travel straight through next light (Monroe Street). Plant is one block beyond on the right.

From Interstate 95-North:
Follow I-95 into Baltimore. Exit at "Russell Street." At bottom of ramp, make a right turn. Go straight through main entrance.



Governor's Advisory Council on Recycling
December 3, 1990

MINUTES

Members in attendance:

Dr. Harvey Alter, CHAIRMAN, general public
Mr. Lawrence J. Hayward, packaging industry
Mr. Paul Hollinger, packaging industry
Mr. James F. Katcef, food and beverage industry
Mr. Lenny D. Minutillo, Jr., food and beverage industry
Dr. Dan K. Morhaim, general public
The Honorable Joan B. Pitkin, Maryland House of Delegates
Mr. James Pittman (representing Mr. Richard Collins), Maryland
Department of the Environment (MDE)
Mr. John W. Schafer, MACO
Mr. Steven Tomczewski, (representing Mr. George Hudnet), solid
waste industry

Members absent:

Mr. Michael Gagliardo, Northeast Maryland Waste Disposal
Authority
The Honorable Regina J. McNeill, Maryland Municipal League
Dr. Michael Pelczar, environmental community
Mr. George Perdikakis, Maryland Environmental Service
Mr. Thomas W. Redmond, Sr., recycling industry
Mr. Barry F. Scher, Maryland Food Dealers Association
The Honorable Gerald W. Winegrad, Maryland State Senate

Others in attendance:

Mr. William G. Burroughs, PolySource, Procter & Gamble
Mr. Chip MacLeod, MACO

The meeting convened with Dr. Alter postponing the acceptance of the minutes until copies have been distributed. Dr. Alter announced that Dr. Pelczar has requested not to be reappointed to the Council. John Schafer may not be able to continue as a member. This decision will be made by MACO, however, it was considered to have Ronald Nelson fill Mr. Schafer's position.

Dr. Alter indicated that he recently wrote to the Governor on a couple of points he would appreciate feedback on dealing with the Council's efforts on fulfilling the Executive Order mandate. Dr. Alter offered to compile the Annual Report and has requested that MDE provide a copy of what has been done in the past to this extent so he can review content and format. Dr. Alter also wrote to the Attorney General's Office. Apparently, the Attorney General has published a pamphlet, "Maryland Consumer Courier," which contained technical and programmatic errors regarding recycling. Dr. Alter pointed out these errors in a letter dated November 27, 1990, and a response has not yet been issued by the Attorney General's Office.

On the topic of future meetings, all meetings, until further notice, will be scheduled on the first Monday of each month. Mr. Pittman reported on the Maryland Recycling Coordinators Training Program that is going on in Howard County on December 3, 4, and 5, 1990 and on the Waste Management Conference for the 90's that is scheduled for December 6 and 7, 1990 in Baltimore.

Mr. Schafer indicated that Harford County was looking at incorporating five communities into their recycling efforts where the community would maintain the recyclable drop-off location and the County would service the locations.

Mr. MacLeod indicated that he had attended Delegate Thomas' recent meeting concerning her proposed solid waste legislation and that there was reference in that meeting to the Council such as where does the Council stand on these kinds of things. It has to be determined whether or not the Council can comment on proposed legislation and in what way can it comment. It was stated that the ability to testify on a particular bill may not be practical, understanding the time constraints involved between when the bill becomes available and when the hearing is held. Dr. Alter explained that to his knowledge, the Council has not been asked to participate in any kind of legislative hearing. However, if the Council was asked, it would certainly try to accommodate the requestor. Mr. MacLeod indicated that this may be a perception problem with the legislature and that we should try to think of what we can do to overcome that.

Dr. Morhaim suggested that the Council write to the Governor and offer our services and that we should broaden our representation on the Council and shared some names of individuals who may be appropriate to serve on the Council. Dr. Alter indicated that the decision rests with the Governor to

make these appointments. Delegate Pitkin supported Dr. Morhaim's suggestion that a broader membership is appropriate. Mr. Schafer indicated, that with respect to community issues over recycling that the counties should have the lead to deal with these on an as needed basis.

Raising Revenues for Recycling

Dr. Alter discussed the long-standing question on whether or not to raise revenues for recycling and how to do such. He also asked if an allocation formula should be used and should this be a part of the recommendation. Delegate Pitkin indicated that pressure may exist from local jurisdictions to raise their own revenue in this area. Dr. Alter indicated that three options exist:

- 1) A waste user fee;
- 2) Fees absorbed into the jurisdiction's tax structure that could be earmarked to local recycling efforts; or
- 3) A State tax.

It was noted that New Jersey collects a fee on every ton of waste disposed and refunds it back to the county, however, the actual mechanics of the New Jersey system were not discussed. Mr. Pittman indicated that jurisdictions may be better equipped to generate revenues for these kinds of activities since they know exactly where they are going, what their resources are, and what their needs are as their recycling program evolves. Mr. MacLeod concurred with that assessment.

Mr. Katcef suggested that a broad based tax on everyone that generates waste may be appropriate. Dr. Alter indicated that perhaps enhancements to existing funding mechanisms is something that the Council could recommend. Mr. Hollinger half jokingly suggested that the county recyclers should be placed on a commission basis, the point being that local recycling coordinators, if they do a good job, clearly will be able to generate additional revenues that had not been generated, and therefore, it would be a self-sufficient and profitable operation for the jurisdiction. Mr. Pittman suggested that on this particular item, the question of whether to raise revenues for recycling be deferred so we can see where we really are a couple of years down the road and see where dollars are specifically needed to help fund recycling efforts. Existing loan and grant programs are the best vehicle to secure funding.

Dr. Morhaim felt that the State should give financial assistance to counties to recycle as a basic premise. Mr. Burroughs suggested that the State should set goals for recycling, provide start-up funds, and take whatever political steps necessary to make recycling happen in all jurisdictions. Mr. Hayward suggested that any fund allocation to jurisdictions must be equitable and a formula must be developed to insure this. Mr. Minutillo indicated that we are really talking about a two-step process, that a State office has to coordinate from the outside and then deal with dispersement of funds subsequently. Dr. Alter indicated that we should return to this issue at the January or February meeting and that he is not inclined to suggest blanket deferral of this question at this time.

November Tour

Dr. Alter asked for comments on what the Council felt concerning the recent tour at Phoenix Recycling. Mr. Hollinger made three points:

- 1) He was shocked at the small turn-out;
- 2) He was not impressed with Phoenix Recycling's operation and that technology; and
- 3) He was surprised to hear from the BRESKO presentation that the plastic component taken out of the waste stream does not significantly effect the BTU value.

Mr. Schafer indicated that the reason most of the Council members did not attend the tour at BRESKO was because many had already been there and had a tour in the past.

Delegate Pitkin gave a brief report on her research on recycling going on in the K-12 school grades. She indicated that 700,00 K-12 students exist in Maryland within 1,200 schools. A great majority of the students are not actively recycling. Learning appears to be the focus and active recycling is not very well developed. Anne Arundel County and, after discussion, Montgomery County does do some active recycling in the schools. Two recommendations were offered:

- 1) Amend the recycling law to require counties to include all public schools in achieving the recycling goal; and
- 2) There should be sponsorship of a statewide conference that involves MDE and Department of Education staff that requires educators to work with recycling coordinators.

Discussion continued revolving around how the Board of Education could be required to get involved in active recycling in jurisdictions when often they are economists to the jurisdiction's system. MDE was asked to check the county recycling plans and report at the next meeting what the level of school participation plus other public sector operations are in the jurisdictions, whether planned or on-line. Delegate Pitkin also asked that MDE find out how much plastics vs. paper (cups for instance) are used in the schools. MDE was also tasked with determining who on the Board of Education would be the appropriate person to contact relative to Delegate Pitkin's recommendations. These recommendations will be sent to the Council for review and will be discussed at the next meeting. Once they are finalized, a draft copy of those recommendations will be provided to the Board of Education to get their input prior to finalization.

The meeting was adjourned. The next meeting of the Council is scheduled for Monday, January 7, 1990, at 8:30 a.m. at the Maryland Municipal League, Annapolis.

State of Maryland
Governor's Advisory Council on Recycling

Harvey Alter, Ph.D.
Chairman

January 12, 1991

TO: Members of the Advisory Council
FROM: Harvey Alter
SUBJECT: February 4, 1991 Meeting



I regret the snow the day of our January meeting and that many of you could not attend but appreciate that a few of you telephoned to say you weren't coming.

No surprise, we didn't have a quorum. However, the few of us there spent some time discussing the interim report draft on bans, taxes and deposits and the paper on raising revenues. We considered the meeting as a committee of the whole whose recommendations are subject to approval of the full Council. (That is a fancy way of saying we didn't make any final decisions but had good discussion.)

I am enclosing an agenda for the February meeting and an updated draft of the Interim Report on Bans, Taxes and Deposits. At the January discussion, it was suggested that a report on funding new programs list possible programs for municipalities and counties that the State may want to encourage. Please bring your ideas.

Related, I am enclosing information from MES on the State Solid Waste Facility Loan Acts. Two key points: (1) There is a mechanism in Maryland for funding recycling (and related activities). (2) The projects for Calendar Year 1990 are all recycling projects.

Last year, we laid a number of foundations. This year, we have a great deal of work to do. I look forward to seeing you at the February meeting.

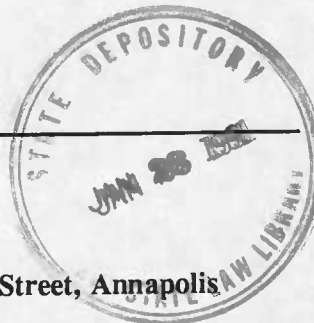
Harvey

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Re 31: 2/19/1991

State of Maryland

Governor's Advisory Council on Recycling

Agenda - February 4, 1991



The meeting will be held at The Maryland Municipal League, 1212 West Street, Annapolis

- 9:00 a.m. Convene, Self Introductions and Adoption of Minutes
• Note: We need to approve minutes from September. Come prepared.
- 9:10 a.m. Staff's and Chairman's Reports
- 9:30 a.m. Continued Discussion of Raising Revenues for Recycling and their Disposition
- 10:30 a.m. Discussion of Interim Report on Package Bans, Taxes and Deposits (January 1991 draft)
- 11:00 a.m. Discussion of Recycling as an Economic Development Tool
• Dan Morhain
- 11:20 a.m. Discussion of Recommendation on Education Programs
• K-12, Joan Pitkin
• Higher Education, H. Alter and M. Pleczar
- 11:50 a.m. Old and New Business
- 12:00 n. Adjourn
-

Pending Topics in Addition to Executive Order

The Following are in Order of Priority from the September Meeting

- recycling as an economic development tool
- recycling without changing practices in SW management
- new construction requirements for recycling
- possible deposits on appliances, tires, lead-acid batteries

State of Maryland
Governor's Advisory Council on Recycling

Harvey Alter, Ph.D.
Chairman

January 13, 1991

TO: Members of the Advisory Council
FROM: Harvey Alter
SUBJECT: 1990 Annual Report



Attached is a draft of the required 1990 annual report. This is for your review.

The last page lists the appendices; none are included because you have seen all of them before.

Please review this text and return it to me at the February meeting. If you cannot attend that meeting, please mail your comments to me by February 5. If there are no major points for discussion, then the report will not be on the February agenda. If the people present feel that some sections have to be discussed, then I will make time.

Your cooperation is greatly appreciated.

Harvey

Governor's Advisory Council on Recycling

January 7, 1991

MINUTES



Members in attendance:

Dr. Harvey Alter, CHAIRMAN, general public
Mr. Michael Gagliardo, Northeast Maryland Waste Disposal Authority (NEMWDA)
Mr. James F. Katcef, food and beverage industry
Mr. Marcus S. Marx, solid waste industry (representing Mr. George T. Hudnet)
Mr. James Pittman, Maryland Department of the Environment (MDE) (representing Mr. Richard W. Collins)
Mr. Barry F. Scher, Maryland Food Dealers Association
Mr. Michael Taylor, Maryland Environmental Service (representing Mr. George Perdikakis)

Members absent:

Mr. Lawrence J. Hayward, packaging industry
Mr. Paul Hollinger, packaging industry
The Honorable Regina J. McNeill, Maryland Municipal League
Mr. Lenny D. Minutillo, Jr., food and beverage industry
Dr. Dan K. Morhaim, general public
Dr. Michael Pelczar, environmental community
The Honorable Joan B. Pitkin, Maryland House of Delegates
Mr. Thomas W. Redmond, Sr., recycling industry
The Honorable Gerald W. Winegrad, Maryland State Senate

Others in attendance:

Mr. Harry Benson, Maryland Department of the Environment
Mr. Glenn Dodson, Maryland Department of the Environment

Dr. Alter convened the meeting at 9:15 a.m. with the statement that because of the small number of participants due to bad weather, this group will act as a committee to the Council and report on its finding to the full Council.

Dr. Alter has been working with educators at the University of Maryland on the topic of post-graduate studies in the environmental field. Dr. Alter stated that he feels that the post-graduate level is the most appropriate setting for these studies with undergraduate work centering on the more traditional topics. Dr. Alter will provide a draft of the Council's Annual Report for the members at the February meeting.

Memorandum: Financing

The first topic of discussion for this meeting was the memorandum, "Approaches to Financing of Existing and Proposed Systems of Solid Waste Recycling." Mr. Scher requested clarification of the purpose of this section. He stated that the Food Marketing Institute (FMI) has put together a model bill which every section has a shopping list of what the State legislators can do. This bill was developed by VP's and presidents of all of the major companies. Mr. Scher suggested that this section of the report include all pertinent options for financing programs and to allow the individual county to choose one or many of these options. Mr. Michael Gagliardo stated that Virginia Thomas has a draft bill that is similar in that Ms. Thomas has many different mechanisms for funding. Mr. Pittman interjected that he believes that this bill will not be introduced in its present form.

Mr. Benson added that the State has put together a booklet, "Funding of County Recycling Programs," which includes many different options including user fees, taxes, New Jersey's program, California's program, etc., and forwarded this to each county recycling coordinator. Dr. Alter requested information on the workings of the Solid Waste Fund managed by MES. Mr. Taylor will provide him with this information. Mr. Pittman stated that the Council should simply lay out all of the vehicles for funding available to counties and added that the State is not responsible for making funds available.

Mr. Scher asked if the State is going to find itself in the position to finance county programs. Dr. Alter stated that the Council must come up with a recommendation. He stated that in his contact with people who are active with the Maryland Recycling Coalition, there may have been a premature, overenthusiastic attitude endorsing the Virginia Thomas bill. These members stated that they have not actually endorsed it but they are interested in any bill that will help recycling. When Dr. Alter inquired as to what they proposed to do with the funds, they had no answer and stated that they will revisit the issue. Dr. Alter stated that you must refrain from blindly saying that the State should lend assistance without detailing the types of assistance and added that any kind of block grants just transfer the burden from the county to the State and this should not be done. Mr. Pittman stated that many counties are at different stages of recycling and each county has its own way of securing funding and knows where they want to go with recycling. He believes that each county should develop innovative ways of securing funding but that the State level of activity would not be high in this area. He stated that the recent Solid Waste Facilities Loan Act provides for recycling grants, but this is not going to solve all county problems. These grants are very limited and are typically issued on a one-time basis. Mr. Taylor stated that this mechanism is in place within the Solid Waste Facilities Loan Act of 1989 offering a lump sum of four million dollars for very specific projects even though this is a revolving, zero-interest program. This could be used for a variety of solid waste activities as long as it is engineering and design-related. It does not state that the funds may be used for any planning activity. The counties would like some kind of program that would provide them with funds to do planning. This money has typically been used once a county has determined that it will build a MRF and then the money has been used for design and engineering.

Much of the money is still available. Most counties are not taking advantage of these opportunities. Baltimore County has used money for feasibility and design work for a MRF. Other than limited use, the funds have gone largely unutilized. Mr. Benson explained that this was due to the fact that counties are, in many cases, still in the planning stages. Dr. Alter asked for information on County Solid Waste Plans. Mr. Pittman stated that these ten-year plans must be reviewed every two years, and submitted to MDE if any changes or amendments take place, but that the Department has deferred any enforcement action regarding this in lieu of the requirement for recycling plans. Dr. Alter suggested that what must be done is to encourage participation, build infrastructure, and develop markets. Mr. Marx stated that with an enterprise fund and a user fee, the counties can sustain and build their programs and the State should develop markets. No State money should go into collection and processing. Dr. Alter cited a report by the Office of Technology and Assessment that stated that the only way to assist is by direct subsidy. They concluded that other options would not work and free money will. Dr. Alter used tax incentives as an example. New companies do not need a tax credit because they do not make profits or can "write down" their profit. They are not paying taxes anyway. Mr. Scher recommended that the Council suggest options for counties and for the State. Mr. Pittman suggested that the options should not be developed separately. There should be one set of options and the State may or may not have a role in each. Mr. Gagliardo stated that the Authority has been involved with the problem of financing and the best way to address this question is to first ask what the money will be used for. The counties have stated that they would use the money for plans. Most of these are nearing completion but now they are left with a mandate to implement programs. Most of the programs are understaffed and can not commit time to implementation of recycling centers or programs because of the amount of time needed to process requests, deal with the Executive Branch and internal projects, etc. The Authority has tried to provide the daily, hands-on, technical, extended staff assistance.

Today, a seminar is being held for haulers interested in curbside collection. Baltimore City wants to use local minority or non-profit organizations for its hauling. The Authority's consultants will instruct these haulers on how to set up curbside recycling and how to develop bids.

The Authority is assisting in the development of correct RFP's, marketing education, etc. Many counties may find that they have restrictions on selling materials. The Joint Task Force is looking to set up an enterprise fund. They will need assistance. Mr. Gagliardo suggested that MDE and MES have a system like the Authority which will provide consultants for a variety of problems. Also, develop peer match programs. Mr. Benson added that while there needs to be improvement and expansion, this type of assistance is taking place. MDE breaks down the State into regions and people are assigned to each region.

The State has conducted a training program and we have continued to provide feedback on the development and implementation of recycling plans. The training programs will continue as well as workshops. MDE staff, acting as consultants, constantly speak with private groups. Dr. Alter felt that the State should pay for travel costs, etc., and also should act as a coordinator of consultants and county offices. This program in which the State would have a ready list of consultants, possibly on contract, was agreed upon by all parties.

It was stated that an enterprise fund is very much like private industry in that it must be solvent and self-sufficient. Anne Arundel County pays for their program through tipping fees and by fees from homeowners on the routes. It was agreed that one of the biggest problems with instituting financing programs is "sticker shock." People who go from paying nothing to paying \$25-\$30 per ton will be upset. Mr. Benson stated that they will realize sticker shock when then have to site a new landfill at \$500,000 or more an acre. Mr. Taylor pointed out that we have a "sticker shock" test case when the Midshore Landfill goes from \$0 to \$25 per ton (Queen Anne's County has a tipping fee but it is much smaller than \$25).

Discussion and Recommendations

Mr. Scher referred to page nine, paragraph one, last sentence of the handout titled, "Discussion and Recommendations." He stated that the averages (3.5 and 4.2) for diverted material will be lower because recycling is already going on presently. Dr. Alter responded by pointing out that these figures are based on the "absence" of recycling programs. 85% was used as a midpoint of past experiences. Mr. Benson cited a recent study by Gershman, Brickner & Bratton, Inc. (GBB) between Anne Arundel County's curbside collection program and Islip Long Island's curbside collection program with the bottle bill to compare waste streams. Dr. Alter is very interested and will examine this document for insight. Mr. Scher added that the Frozen Food Manufacturers Institute is doing an intensive study on package reduction. Dr. Alter stated that he has requested many times that the packaging industry provide information on package reduction. The weight of packaging has reduced considerably. It is understood that much of this reduction was not done for waste reduction, but the reduction is high. He added that traditional forms of packaging are going down and aluminum and plastic are going up, but total packaging is going down.

He stated that the idea of tradition has caused Maine to ban certain packages that make no sense to ban because they are very good packaging. Dr. Alter added that all packaging is being reduced, including pelletizing and wrapping, etc. Mr. Scher has offered to provide information to Dr. Alter on packaging. Mr. Gagliardo stated that economics will drive packaging and the tax on the packaging would have to be great enough to cause the manufacturers to change. It was agreed that manufacturers are aware of the environment as an issue and as a selling point, but to what degree is uncertain.

Mr. Pittman asked what is the preference of most people, paper or plastic, and how do they make their determination. Mr. Scher stated that plastic outdistances paper everywhere. In metropolitan settings, it is very close to 100%. Plastic is much cheaper. Mr. Scher also stated that the reusable bags are catching on very quickly (mesh bags). The mesh bags were developed to be placed in the normal plastic bag holders because they need productivity.

Dr. Alter stated that the draft of the Annual Report will be prepared and calculated. He also suggested that the State and environmental community create a big show at the General Assembly to display what is happening with recycling throughout the State and what needs to be done. This also applies to the Annual Report. He would like to show a lot of activity and envisions the Report being lengthy.

On a separate issue, Dr. Alter asked for a clarification from the Department of Agriculture as to whether grass clippings should be removed from lawns.

The meeting was adjourned. The next meeting of the Council is scheduled for Monday, February 4, 1991, at 9:00 a.m. at the Maryland Municipal League.

SOLID WASTE FACILITY LOAN ACTS

Solid Waste Facilities Loan of 1983 (\$4,000,000)

- 50% grants or loans for Feasibility
- 87-1/2% grants or loans for construction
- 100% allowed for State facilities

Solid Waste Facilities Loan of 1986 (\$500,000)

- 50% grants or loans for feasibility
 - \$200,000 limit per facility or system
- 50% grants or loans for design and construction
 - \$250,000 limit in this category
- 100% grants or loans (limit for feasibility - \$350,000)
 - State facilities
 - Regional facilities
 - Project with waste-to-energy component

Recycling Loan of 1988 (\$500,000 - for recycling only)

- 80% grants for feasibility
 - \$100,000 limit per facility
- 80% grants or 50% loan for design and construction
 - \$250,000 limit per facility

Solid Waste Facilities Loan of 1989 (\$4,000,000)

- 50% reimbursable grants for feasibility and design
 - \$700,000 limit per facility
- 100% (with \$1,000,000 limit)
 - State facility
 - Regional facility
 - Facility or system with recycling component
 - Facility or system with waste-to-energy component
- Special condition
 - Recipient will repay funds



Recycling Loan of 1988 Awards.

11

BOARD OF PUBLIC WORKS

April 4, 1990

Secretary's Agenda

6. DEPARTMENT OF NATURAL RESOURCES -
MARYLAND ENVIRONMENTAL SERVICE: (Continued)

The projects for the calendar year 1990 are as follows:

| Jurisdiction | Description | Level of Assistance |
|--------------------------|--|---------------------|
| ✓ Bowie | Construction of Recycling Facility | \$ 85,000.00 |
| ✓ Prince George's County | Yard Waste Composting | 25,000.00 |
| ✓ Anne Arundel County | Construction of Materials Recycling Facility | 50,000.00 |
| ✓ Leonardtown | County Office Materials Collection | 5,880.00 |
| Takoma Park | Curbside Collection Program | 38,800.00 |
| Anne Arundel County | Curbside Recycling Containers | 24,000.00 |
| Prince George's County | Wood Waste Recycling Equipment | 25,000.00 |
| Howard County | Mobile Recycling Truck | 19,524.00 |
| Cheverly | Yard Waste Composting Equipment | 38,360.00 |
| Baltimore City | Curbside Collection Equipment | 36,250.00 |
| Taneytown | Recycling Storage Building | 10,540.00 |
| Queen Anne's County | Materials Collection Vehicle | 38,720.00 |
| Sykesville | Curbside Collection Equipment | 40,000.00 |
| Annapolis | Materials Processing Equipment | 29,720.00 |
| Indian Head | Curbside Collection Equipment | 25,000.00 |
| Carroll County | Office Paper Recycling | 2,206.00 |
| Kent County | Pilot Recycling Collection | 6,000.00 |
| | TOTAL | \$500,000.00 |

Board of Public Works Action: The above referenced item was:

Approved

Disapproved

Deferred

Withdrawn

With Discussion

Without Discussion



Maryland Department of Natural Resources



Maryland Environmental Service

2020 Industrial Drive
Annapolis, Maryland 21401
(301) 974-7281

William Donald Schaefer
Governor

SOLID WASTE FACILITIES LOAN OF 1986

Torrey C. Brown, MD
Secretary

George G. Perdikakis
Director

Anne Arundel County

Test Program for Curbside Collection of Recyclables - \$40,000

Evaluation of recycling systems to determine how several communities react to different types of programs and the success of each program. Data collected will assist the County and other Maryland jurisdictions in decisions on developing recycling systems. (Approved by Board of Public Works 1/13/88 - ~~project underway~~)

Baltimore City

Community Based Drop-off Recycling Program - \$62,500

Community-based drop-off recycling program for color-sorted glass, aluminum and newspapers. (Approved by Board of Public Works 2/1/89)

Dorchester County

Landfill Improvements and Evaluation of Solid Waste Management Alternatives - \$50,000

Preliminary engineering for landfill improvements, permitting, and leachate control for groundwater protection and evaluation of landfill alternatives. (Approved by Board of Public Works 5/25/88 - ~~project underway~~)

Garrett County

Landfill - \$72,500

Design and develop new landfill. (~~On priority list - final application pending~~)

Queen Anne's County

Recycling Project - \$115,000

Final application pending development of recycling plan for Midshore region. (On priority list approved by Board of Public Works)

Somerset County

Landfill Alternatives - \$100,000

Investigation of potential for incinerating Eastern Correctional Institution, University of Maryland Eastern Shore and Somerset County solid waste. (Approved by Board of Public Works 1/13/88) ~~project underway~~

St. Mary's County

Regional Waste-to-Energy Project - \$55,000

Preliminary feasibility analysis of regional waste-to-energy project for Calvert, Charles and St. Mary's Counties. (Approved by Board of Public Works 1/13/88 ~~project underway~~)

State of Maryland
Governor's Advisory Council on Recycling

Harvey Alter, Ph.D.
Chairman

February 10, 1991



TO: Members of the Advisory Council
FROM: Harvey Alter
SUBJECT: Preparing for the March 4 meeting

I was distressed by the discussion at our February meeting concerning the report on package restrictions. Although the Council approved the draft report to be sent to the Governor (with instructions for a few editorial changes), there were still some questions and dissention. I have made the instructed changes but also have elaborated some of the points, hopefully to expand on some of the points of dissention.

Let's try one more -- and last -- time. Enclosed is a copy of a February 9 draft. Please read it carefully and make certain that you agree. In addition to the elaboration, I have added more literature cites in the footnotes. My approach is to use the literature cites to explain the text; the ideas here are not original with the Council but have been expounded in the academic and government report literature. Related, I have copies of all of these cites (needless to say) and will share copies with any of you who are interested.

Also enclosed is a draft of an interim report on school programs. I have edited Delegate Pitkin's report on grades K-12 (as instructed) and have a report on graduate programs along the lines discussed at the last meeting. In addition, I have added something regarding the new federal Environmental Education Act, including taking the liberty of suggesting some recommendations. You have a copy of that Act in this mailing so please review it and make certain you agree with these rather benign recommendations.

It is worth reiterating that many of the points in the our charge from the Governor cannot be addressed or responded to completely in our interim reports. We are responding in parts and this must be taken into consideration when you review the reports. There is no reason why we can not return to any of the points in the Executive Order (or other points) whenever we want to. I firmly believe that if we try to complete any of the complicated points all at once, we will be so bogged down that there will be a distinct impression of not doing anything.

I look forward to seeing you on March 4, usual time and place. An Agenda is enclosed.

Harvey

State of Maryland

Governor's Advisory Council on Recycling

Agenda - March 4, 1991

The meeting will be held at The Maryland Municipal League, 1212 West Street, Annapolis

- 9:00 a.m. Convene, Self Introductions and Adoption of Minutes
 - 9:10 a.m. Staff's and Chairman's Reports
 - 9:30 a.m. Continued Discussion of Raising Revenues for Recycling and their Disposition
 - Task Group Leader, Barry Scher
 - 10:30 a.m. Discussion of Interim Report on Package Bans, Taxes and Deposits (January 1991 draft)
 - 11:00 a.m. Discussion of Interim Report Education Programs
 - 11:30 a.m. First Reports on Task Groups
 - Economics & Financing, Harry Benson
 - Procurement, Mike Gagliardi
 - Waste Reduction, Paul Hollinger
 - 11:50 a.m. Old and New Business
 - 12:00 n. Adjourn
-

Pending Topics in Addition to Executive Order

• The Following are in Order of Priority from the September Meeting

- recycling as an economic development tool
- recycling without changing practices in SW management
- new construction requirements for recycling
- possible deposits on appliances, tires, lead-acid batteries

State of Maryland
Governor's Advisory Council on Recycling

TO: Members of the Council
FROM: Harvey Alter
DATE: February 18, 1991
SUBJECT: Work Plan for 1991



Attached is a short work plan for 1991, extending into 1992. Please review it and come prepared to discuss it at the March meeting. Somehow, we'll find time on the agenda.

If you are unable to come to the meeting, please phone me (daytime at 202-463-5531) or send your comments. Shortly after the March meeting, I would like to submit the plan to the Governor.

Please note that the 1991 plan is an addendum or correction to the previous plan. There didn't seem any sense in repeating everything.

Harvey

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February 18, 1991

State of Maryland
Governor's Advisory Council on Recycling

**PLAN OF WORK
1991**



1.0 Introduction

This plan is a continuation of the April 2, 1990 plan of the Council. It is intended as a supplement to the original plan. The two should be read together.

Not all of the 1990 plan was accomplished due, in large, to the growing base of knowledge and understanding among the Council members. Many of the tasks were addressed and it was realized that several have to be further addressed in parts.

2.0 Tasks to be Addressed in 1991

Figure 1 is a schedule or Gantt chart of the 1991 plan of work. Some of the tasks are planned to carry over into 1992. A brief description of the tasks listed follows.

2.1 Package reduction. This task was started in 1990 and examines the effect of bans, taxes and deposits on packages as a means of reducing the amount of municipal solid waste (MSW) and increasing recycling. (Note that a further task (2.6) is planned to further examine methods of waste reduction, particularly through recycling.

2.2 Education. This task has addressed increasing public awareness by education programs in grades K through 12 and at the post-graduate university level. The task also addresses recommendations for the State to become ready for implementation of the federal National Environmental Education Act of 1990.

2.3 Raise revenues. This task has addressed methods of raising revenues to support additional recycling efforts in the State and possible ways those revenues can be used.

2.4 State procurement. This task addresses methods of increasing the procurement of items by the State made of recycled materials, and thus helping provide a "demand pull" in the market for recycled products.

2.5 Economics and financing. This task addresses means of raising revenues in the State, counties and possibly municipalities to fund recycling efforts, including the construction of Materials Recovery Facilities (MRFs).

2.6 Waste Reduction. This task is a continuation of task 2.1 to explore additional means of reducing the amount of MSW destined for disposal by recycling and possibly other means.

2.7 Economic development. This task is at the suggestion of one of the Council members to explore ways in which the establishment of recycling activities can be tied into local economic development.

2.8 Public information. This task is related to 2.2 Education. It is directed at exploring and recommending means by which the State can increase awareness of recycling in communities and thus increase participation and yield of recycled products.

2.9 Product deposits. This task is at the suggestion of one of the Council members to explore ways in which product deposits may be used to divert materials from disposal and to recycling. Some of the products mentioned are lead acid storage batteries, appliances and tires.

2.10 ONP and tire markets. Markets for ONP (old newsprint) and tires are presently demand limited. Ways must be explored to increase the demand and hence the ability to recycle these materials in Maryland.

2.11 New MRF construction. This task will explore methods by which the construction of new and additional state-of-the-art MRFs can be encouraged. MRFs are processing plants that use a combination of machinery and hand labor to prepare separated materials to meet specifications for markets. Regionalization must be included in addressing this task.

2.12 Economic feasibility. This task will analyze the economic feasibility of recycling under different circumstances. The task is scheduled for study late in the year (and into 1992) when more data will be available on markets, participation and MRF economics.

2.13 Expand centers. This task, related to 2.12, is to examine how recycling can be expanded beyond MRFs and possibly service rural and high density housing, as contrasted to curbside pickup.

February 18, 1991

2.14 Advancing MRFs. When this task is examined, there should be sufficient experience with MRFs to possibly understand how new and more efficient technology may be adopted in the State to advance the efficiency of recycling and better meet market specifications.

2.15 Rules and regulations. At some time, there will have to be State regulations governing the design and operation of MRFs and other recycling activities so as to protect public health. This is a difficult task, and possibly beyond the lay understanding of solid waste management and public health issues among the Council members.

2.16 Annual report. An annual report for 1991 is scheduled, as required. It is marked as a milestone on the Gantt chart.

3.0 Updates of the Work Plan

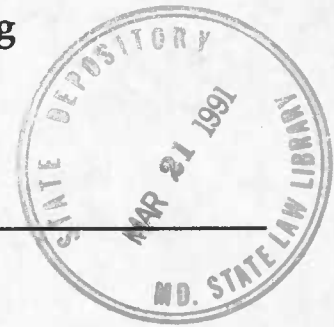
The 1991 Work Plan schedule is now computerized so can easily be updated from time to time. This will also provide a progress report for the Governor and others.

1991-1992 Work Plan Schedule
Governor's Advisory Council on Recycling

| TASKS | 1991 | | | | | | | | | | | | 1992 | | | | | | | | | | | |
|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--|
| | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | |
| Package reduction | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | | | | | | | | | | | | |
| Education | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | | | | | | | | | | | | |
| Raise revenues | | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | | | | | | | | | | | | |
| State procurement | | | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | | | | | | | | | | | | |
| Econ. & financing | | | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | | | | | | | | | | | | |
| Waste reduction | | | | //// | //// | //// | //// | //// | //// | //// | //// | //// | | | | | | | | | | | | |
| Economic develop. | | | | | | | | //// | //// | //// | //// | //// | | | | | | | | | | | | |
| Public information | | | | | | | | | //// | //// | //// | //// | | | | | | | | | | | | |
| Product deposits | | | | | | | | | //// | //// | //// | //// | | | | | | | | | | | | |
| ONP-tire markets | | | | | | //// | //// | //// | //// | //// | //// | //// | | | | | | | | | | | | |
| New MRF const'ion | | | | | | | | | | | | | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | |
| Economic feasib. | | | | | | | | | | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | |
| Expand centers | | | | | | | | | | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | |
| Advancing MRFs | | | | | | | | | | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | |
| Rules & regulation | | | | | | | | | | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | |
| Annual Report | | | | | | | | | | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | //// | |
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State of Maryland
Governor's Advisory Council on Recycling

Agenda - April 1, 1991



The meeting will be held at The Maryland Municipal League, 1212 West Street, Annapolis

- 9:00 a.m. Convene, Self Introductions and Adoption of Minutes
- 9:10 a.m. Staff's and Chairman's Reports
- 9:30 a.m. Continued Discussion of Raising Revenues for Recycling and their Disposition
• Task Group Leader, Barry Scher
- 10:30 a.m. Reports on Task Groups
• Economics & Financing, Harry Benson
• Procurement, Mike Gagliardi
• Waste Reduction, Paul Hollinger
- 11:40 a.m. Old and New Business
- 12:00 n. Adjourn
-

Pending Topics in Addition to Executive Order

The Following are in Order of Priority from the September Meeting

- recycling as an economic development tool
- recycling without changing practices in SW management
- new construction requirements for recycling
- possible deposits on appliances, tires, lead-acid batteries

MD 103 Re 3/1:2/12/1991

Governor's Advisory Council on Recycling

March 4, 1991

MINUTES

Members in Attendance:

Dr. Harvey Alter, CHAIRMAN, general public
Mr. Harry Benson, Maryland Department of the Environment
(representing Mr. Richard W. Collins)
Mr. Michael Gagliardo, Northeast Maryland Waste Disposal Authority
Mr. Lawrence J. Hayward, packaging industry
Mr. Paul Hollinger, packaging industry
Mr. George T. Hudnet, solid waste industry
Mr. Lenny D. Minutillo, Jr., food and beverage industry
Dr. Dan K. Morhaim, general public
Mr. Barry F. Scher, Maryland Food Dealers Association

Members Absent:

Mr. James F. Katcef, food and beverage industry
The Honorable Regina J. McNeill, Maryland Municipal League
Dr. Michael Pelczar, environmental community
Mr. George Perdikakis, Maryland Environmental Service
The Honorable Joan B. Pitkin, Maryland House of Delegates
Mr. Thomas W. Redmond, Sr., recycling industry
The Honorable Gerald W. Winegrad, Maryland State Senate
A member from the Maryland Association of Counties

Others in Attendance:

Mr. Glenn Dodson, Maryland Department of the Environment
Mr. Marcus S. Marx, Wheelabrator Environmental Systems

Dr. Alter convened the meeting at 9:15 a.m. with a review of the February minutes. Mr. Paul Hollinger clarified his statements concerning the benefits of returnable containers by adding that there is a need to reexamine this issue in the context of the 1990's using new information. Mr. Scher referred to MDE's call for funding sources to finance a newsletter and suggested using private firms. Mr. Scher agreed to send a list of companies that might be interested. The minutes were adopted.

Staff and Chairman's Report

Approximately 10 plans have been reviewed and the remaining are scheduled to be completed by April. The weaknesses in many plans centered in the regional activities, financing section, and in public education. A.T. Kearney has been contracted by the State through EPA to develop a generic public education and promotion campaign which will alleviate much of the education shortfalls in the plans. MDE has formed a work group to make recommendations on the development of a standardized county recycling reporting form. This will be used by the counties to report solid waste collection and recycling data. Secretary Perciasepe and Mr. Perdikakis will be making a presentation to the

Governor in the next two weeks on recycling in Maryland. The Office of Waste Minimization and Recycling is working diligently on this project. Dr. Alter requested that Secretary Perciasepe mention the various reports and letters that were sent to the Governor. If possible, the members will be provided with a copy of this report. A discussion was introduced by Dr. Morhaim about the expansion of the members of the Council. Because of the process that is required to add members and because of the fact that the meetings are open to visitors, it was decided not to pursue this issue further. The Plan of Work for 1991 was discussed and suggestions were made. The Plan will be sent to the Governor.

Raising Revenues for Recycling and their Disposition

Task Group Leader, Barry Scher, distributed a report on this topic. Mr. Scher stated that now more than ever, counties are going to need additional funding sources for developing their recycling programs. In many cases, they will go to the State and say that since the State is requiring AB&C, then the State must help fund the program. The Council needs to address initially two points: (1) do we simply provide the counties with various funding alternatives, or (2) make recommendations for the use of the funding generated. The information utilized to develop the paper was from the Food Marketing Institute, information provided by Dr. Alter, and Mr. Scher's own knowledge. Mr. Scher believes that the counties have already detailed how they plan to implement their respective programs.

The mission of the Council should be to provide as much information as possible on the various funding sources and mechanisms. It was agreed that counties must include in their calculations of the cost for recycling, the added savings derived from not building new landfills. Mr. Benson stated that all counties are required to submit cost avoidance calculations with their recycling plans. MDE will review the report and make comments. Mr. Hudnet suggested that the Council encourage the counties and municipalities to do a more accurate analysis of the cost of recycling. Many times, these costs are not accurately counted. It was agreed that recycling will not eliminate other forms of waste disposal, but may reduce them. Mr. Benson agreed to address full-cost accounting in the task report.

Interim Report on Package Bans, Taxes, and Deposits

Mr. Hollinger questioned whether the belief that there is not adequate current data on refillable systems was properly illustrated in footnote 2.6. The Council voted to leave the footnote as is and to address this issue in the future.

Dr. Morhaim commented that footnote 10 implies that there is only a cost to recycling without mentioning the cost of not recycling. The Council voted not to alter the footnote.

It was decided that a footnote will be added to page three which states that methods of recycling light weight aluminum are being tested.

The changes will be made and the Interim Report is approved by the Council and will be forwarded to the Governor.

Interim Report on Education Programs

The report was reviewed by the Council. It was agreed that "all public schools," Recommendations, page four, paragraph one, be changed to simply, "public schools." This would take into consideration that schools will not be able to implement programs at the same time or in the same magnitude. The sentence "...Maryland Recycling Act be amended to require counties..." will be changed to remove the word "require." This will leave the mechanisms of implementation to the legislators. The last paragraph on page four will read "...and/or the State Board..." The Report, with changes, will be forwarded to the Governor.

First Reports on Task Groups

Waste Reduction: Mr. Hollinger

Mr. Hollinger distributed two articles from the October 1990 Waste Age (Bills...or Doom? and Bottle Recycling's Boom). Bills... or Doom? states that in some cases, earlier bottle bills were started as litter control laws and that bottle bills are redundant. Bottle Recycling's Boom sites many successes in the implementation of bottle bills. Mr. Hollinger referenced an article which stated that as you reduce packaging, you inversely increase food wastes. He referenced an article by Tom Rattery, Packaging Manager, Procter & Gamble, about the merits of source reduction. Mr. Hollinger mentioned other articles, copies of which may be obtained from him.

Procurement: Mr. Gagliardo

Mr. Gagliardo distributed a report that provides an overview of State and local government "Buy Recycled" programs in Maryland. Copies may be obtained from the Council. The Authority has sent out a survey that asks counties their plans for developing recycling preference regulations. The results may be available for the April meeting. In conjunction with the Maryland Municipal League, they have also sent out a survey to all municipal governments with populations over 10,000.

There was a discussion of post/pre-consumer recycling and the definition of recycled. The Newsprint Recycling Board is addressing these issues also.

Economics and Financing: Mr. Benson

Separate sub-groups are being formed to address the separate issues of this topic. The participants in this work group will include Mr. Hudnet Ms. Beryl Friel and Mr. Katcef. The progress of this task group will be reported on in subsequent Council meeting.

The next meeting is scheduled for Monday, April 1, 1991 at 9:00 a.m. at the Maryland Municipal League.

Governor's Advisory Council on Recycling

April 1, 1991

MINUTES



Members in Attendance:

Dr. Harvey Alter, CHAIRMAN
Mr. Larry Hayward, packaging industry
Mr. Paul Hollinger, packaging industry
Mr. George Hudnet, solid waste industry
Mr. Jim Katcef, food and beverage industry
Mr. Richard Keller, Northeast Maryland Waste Disposal Authority
(representing Mr. Michael Gagliardo)
Mr. Lenny D. Minutillo, Jr., food and beverage industry
Dr. Dan Morhaim, general public
Mr. James Pittman, Maryland Department of the Environment
Mr. Barry Scher, Maryland Food Dealers Association
The Honorable Gerald W. Winegrad, Maryland State Senate

Members Absent:

The Honorable Regina J. McNeill, Maryland Municipal League
Dr. Michael Pelczar, environmental community
Mr. George Perdikakis, Maryland Environmental Service
The Honorable Joan B. Pitkin, Maryland House of Delegates
Mr. Thomas W. Redmond, recycling industry
The Honorable John W. Schafer, Maryland Association of Counties

Others in Attendance:

Mr. Harry Benson, Maryland Department of the Environment
Mr. William Burroughs, PolySource
Mr. Glenn Dodson, Maryland Department of the Environment
Mr. Rick Sheckells, Governor's Office

The regular monthly meeting of the Governor's Advisory Council on Recycling was held on Monday, April 1, 1991 at 9:00 a.m. at the Maryland Municipal League with Dr. Harvey Alter convening the meeting. The minutes of the last meeting were adopted.

Chairman and Staff Reports

Mr. Harry Benson distributed briefing papers on each of Maryland's 24 jurisdictions. The recycling plans were, in many cases, poor in their public education development, full-cost accounting programs.

A work group has been formed to make recommendations for the development of the Solid Waste Reporting System. Dr. Alter recommended that the "sources" of waste be identified. The work group is studying several other state's recycling/solid waste reporting forms. Mr. Barry Scher asked for a summation of Virginia's counties' programs if possible.

Mr. Benson announced his resignation from the Maryland Department of the Environment (MDE).

Raising Revenues for Recycling

Dr. Alter indicated that a topic that has been discussed in previous meetings should be taken into consideration, "what will be done with the revenues that are raised?" Mr. Scher questioned whether the Council should make recommendations or develop a list of suitable options that counties can choose for guidance. Mr. Hudnet stated that it may be unwise to recommend to the counties "specifics" because in the event of failure by any number of reasons, the county may point to the Council when assessing blame. This issue was discussed at length. The concept of "peer matching" was discussed with respect to people who implemented "actual programs." Senator Gerald Winegrad suggested that a full-time position be designated in the Office of Waste Minimization and Recycling for a "peer match" type program developer. He stated that the biggest drawback to Maryland recycling may be the lack of adequate funding for counties. It was also suggested that market development is a major "key" in developing successful programs. There was a continued lengthy discussion concerning grants, low interest loans, and tax incentives for recycling. It was agreed that the assistance a new company may require will range from actual money to simply assist with the permitting process or siting assistance. The staff was asked to put together a glossary of other State legislation (National Solid Waste Management Association)(WMA). Senator Winegrad will provide information on State legislation concerning funding.

TASK GROUPS

Economics and Financing

Mr. Benson distributed an excerpt from the Maryland Recycling Coordinators Training Program concerning "full-cost accounting." He also has requested an article from Mr. Harvey Gershman on this issue and this will be provided at a later date. This program includes "all" costs of disposal. County plans will not be approved if they have not applied full-cost accounting and then chosen a method to fund the program. It was agreed that the use of an enterprise fund was an important vehicle to fund solid waste management. Mr. Benson will provide a summary of county funding mechanisms as stipulated in the recycling plans. MDE is developing a reporting form for "materials accounting." Dr. Morhaim suggested that somehow it should be pointed out that there should be benefits accounting. People should not lose sight of the tremendous value of recycling and that the costs are a hurdle which must be addressed in order to get to the benefits. It was agreed that in most cases, jurisdictions are not taking into consideration "avoided costs."

Procurement

Mr. Richard Keller distributed "County Programs in Maryland for Buying Recycled Products" (draft). This included a questionnaire and its results are summarized in the text. Some of the information may be incorrect through the ignorance of the individual who responded to the survey.

The State of Maryland was not included because the Authority already had a great deal of information on the State and wanted to target local governments for which there was little current information. There has been a push to include "quasi" State agencies and non-profit groups in large State purchase agreements. Some jurisdictions are requiring the use of recycled products. The State, the General Assembly, etc., should set examples in the purchase of recycled products. It was suggested that in future surveys, the total of non-recycled products be included. It was suggested that private industry be included. Mr. Keller stated that the quality of recycled paper can be in par with virgin.

Waste Reduction

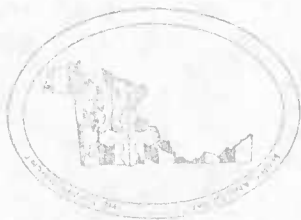
Mr. Paul Hollinger distributed articles on the waste reduction issue from various sources. Mr. Hollinger would like to get some stationary for the Governor's Advisory Council on Recycling so he can write thank-you letters to people for sending him information. Mr. Hollinger also distributed an alternative packaging material to the foam peanuts. At the next meeting, Mr. Hollinger will discuss engineering plastics (engineered thermal plastics that will replace other products in industry). Dr. Alter encouraged the members to think about non-packaging opportunities in waste reduction. There was a discussion about the merits of so many different types of packaging. It was generally agreed by the members that in many products, packaging does sell. However, in the case of colas, most plastic bottles are fairly generic. It was pointed out that many beer companies are so particular about their glass that two and three color-mixed cullet has a limited use in amber and green glass container furnaces.

Old and New Business

Mr. Hollinger would like to have the Governor's Advisory Council on Recycling stationary printed up with all of the members' names listed down one side. Dr. Alter pointed out the stationary on his computer and developed it in his increasingly diminishing spare time. Dr. Alter stated that he will put this idea on his list of "things to do" and it will be prioritized accordingly.

The next meeting is scheduled for May 6, 1991 at the Maryland Municipal League from 9:00 a.m. to 12:00 noon.

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altimore MD 21224
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Governor's Advisory Council on Recycling

May 6, 1991

Minutes



Members in Attendance:

Mr. Michael Gagliardo, Northeast Maryland Waste Disposal Authority
Mr. Larry Hayward, packaging industry
Mr. Paul Hollinger, packaging industry
Mr. James Katcef, food and beverage industry
The Honorable Regina J. McNeill, Maryland Municipal League
Mr. Lenny Minutillo, Jr., food and beverage industry
Mr. James Pittman, Maryland Department of the Environment (MDE)
(Acting Chairman for Dr. Harvey Alter)
The Honorable Gerald Winegrad, Maryland State Senate

Members Absent:

Mr. George Hudnet, solid waste industry
Dr. Dan Morhaim, general public
Mr. George Perdikakis, Maryland Environmental Service
The Honorable Joan B. Pitkin, Maryland House of Delegates
Mr. Thomas Redmond, recycling industry
Mr. Barry F. Scher, Maryland Food Dealers Association

Others in Attendance:

Mr. Bill Burroughs, PolySource
Mr. Glenn Dodson, MDE
Mr. Rick Sheckells, Governor's Office

The regular monthly meeting of the Governor's Advisory Council on Recycling was held on Monday, May 6, 1991 at 9:00 a.m. at the Maryland Municipal League with Mr. James Pittman convening the meeting in the Chairman's absence. The minutes were set aside for adoption at the June meeting.

MDE and Other Member Reports

Mr. Dodson distributed flyers for the Maryland Recycling Conference which will be held on May 29 and 30, 1991 at the University of Maryland Baltimore County Campus. MDE, along with other State and private environmental organizations in coordination with GBB are offering this conference. All members are encouraged to attend.

MDE is near completion of a generic public relations/promotions campaign developed in coordination with A.T. Kearney and the EPA. This campaign consists of flyers, posters, radio spots, newspaper advertisements, and a "how to" manual to explain the implementation of the program. The materials will either be given or lent to counties and municipalities so as to minimize the cost of this type of program. This will alleviate many of the shortfalls with the public education sections of the recycling plans.

The County Reporting Form Work Group, which has been meeting regularly over the last few months, is developing recommendations. A draft of the reporting form will be sent to the Council members. All 22 recycling plans that were submitted have been reviewed and letters are being sent to the counties.

Mr. Gagliardo stated that Harford County's plan will be submitted soon. Their program is getting back up to speed. The Authority is heavily involved with markets. Baltimore County is going to sign an agreement for paper recycling. They have received responses to their solicitation of interest for a private MRF capacity in Baltimore County, Baltimore City and Anne Arundel County. The \$10 a ton surcharge to facilities that was proposed for Baltimore City to replace the revenue lost with the repeal of the container tax and to encourage commercial recycling was changed to a 16% charge to waste generators and then deferred to sometime before June.

Senator Winegrad presented information on recent legislation. House Bill 1202 was passed which will set up a fee system targeted at the tire wholesaler, which is unlike many other States' laws. The Board of Public Works is allowed to assess a fee up to \$1/tire. Each county must develop a used tire recycling management program. The money collected will be put into a used tire recycling fund operated by MDE and will be used for grants to the counties and a variety of other options. The bill also applies to the five tires sold with a new car. On July 1, 1994, it will be against the law to dispose of tires in a landfill. This is a non-lapsing fund. Senator Winegrad believes that the best way to address the disposal of used tires would be to develop one or two regional facilities that would process the tires with private industry. It was generally agreed that there is no strong market for recycled tires because of the cost to separate the useful materials. Several pyrolytic processes were mentioned. It was estimated that a tire contains approximately four gallons of petroleum energy equivalency.

The Plastic Code Recycling Bill passed that requires coding for plastics. In most cases, however, plastics manufacturers are already using this system.

The telephone directory recycling bill was passed which has content percentage requirements much like the Newsprint Recycling Act. Bell Atlantic will be using recycled content on a trial basis in some jurisdictions. They have testified that they had a difficult time purchasing recycled paper in the past.

Stump dumps will be regulated as "special case" landfills and will be required to get permits. Immediately, these facilities must operate in a safe manner and allow MDE to inspect.

Senator Winegrad stated that the Council should support the two-sided copying bill for State agencies.

Task Group Updates

Procurement

The surveys that were introduced at the last Council meeting are not completed but may be ready for the June meeting. The Authority is working with Baltimore City to develop a City ordinance on "buy recycled." Baltimore County signed its "buy recycled" ordinance on April 19, 1991. A draft General Services Implementation Report regarding State purchases has been distributed to agencies for review. Comments are due on March 15, 1991. Mr. Keller is meeting with the legislature about purchasing recycled materials.

Packaging

Mr. Hollinger present information and passed out materials on packaging. He gave an overview of engineering thermal plastics. He cited an article in the February 1988 Journal of Packaging Technology that explained many of the benefits of plastics. The disposal of plastics was examined, incineration, recycling, etc. Mr. Hollinger cited an article from 1988 that states that commodity plastics, PE, PP, PVC, and even PET are difficult to recycle economically but burning does make sense. PE has a 19,900 BTU/pound value, PP has a 19,850 BTU/pound value, PS has a 17,800 BTU/pound value, and newspaper has an 8,000 BTU/pound value. Mr. Hollinger pointed out that coal has a BTU/pound value of 9,600. Thermo-setting plastics cannot be recycled. Mr. Burroughs strongly disagreed that PET, HDPE, PP, and PVC are not economically recyclable. He expects to sell these products at almost virgin prices. The Council agreed that this article was inaccurate in its assessment of plastics. Mr. Gagliardo stated that in most programs, plastics and aluminum will be the money making commodities. Mr. Hollinger referenced the article "Buying What's Right," which provides an overview of the benefits of packaging. He also referenced "Recycling Solid Waste" which describes the new attitudes in packaging. There was a discussion about the Council's attitudes with respect to packaging and its use or misuse. It was stated that every time you want to recycle a certain material, a law should not be passed but rather the market should determine this. It was agreed that people's attitudes must be changed if markets are to grow. Mr. Hollinger suggested a tour of Lever Brothers' facility. Mr. Hollinger will provide information to Dr. Alter concerning this suggestion.

Mr. Gagliardo has agreed to Chair the Financing Task Force in Mr. Harry Benson's place.

Senator Winegrad was asked to provide information on legislation for raising funds for recycling. The Senator distributed a variety of past bills that were designed for the raising of recycling revenues. Senate Bill 680 suggested a \$1.50/pound fee on waste which would be used for a variety of programs. This is based on Wisconsin's law. The members were asked to review this legislation and be prepared to discuss this type of legislation at the June 3, 1991 meeting. Senator Winegrad feels that this is the type of legislation that should be put into a recommendation to the Governor by the Council.

The next meeting is scheduled for June 3, 1991 at the Maryland Municipal League from 9:00 a.m. to Noon.

JB

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State of Maryland
Governor's Advisory Council on Recycling

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MAY 23 1991

Agenda - June 3, 1991

HSWMA
ENFORCEMENT PROGRAM

MAY 29 1991

The meeting will be held at The Maryland Municipal League, 1212 West Street, Annapolis

- 9:00 a.m. Convene, Self Introductions and Adoption of Minutes
- 9:10 a.m. Staff's and Chairman's Reports
- 9:30 a.m. Continued Discussion of Raising Revenues for Recycling and their Disposition
- This meeting will be devoted to completing our work on this topic. The discussion will center around Senator Winegrad's bill, S. 680, concerning State Recycling Fund - Landfills - Recycling Fee. Please review the bill. It is not intended that the Council will change its practice and endorse a bill. Rather, the ideas in S. 680 can serve as the outline of our discussions.
- 11:00 a.m. Old and New Business

Please take note of the enclosed invitation for you to attend a lecture and demonstration on the burning of old tires in a cement kiln. The chairman has arranged this invitation for all members of the Council. No RSVP is necessary. Your host is Mr. Bob Campbell, should you attend.

**AGENDA
WHOLE TIRE RECYCLING
IN CEMENT KILNS**

June 4th, 1991 -- 10:00 am to 2:00 pm

**ESSROC Cement Plant and Holiday Inn
Frederick, Maryland**

Jointly Sponsored by:

**Goodyear Tire & Rubber Co.
ESSROC Materials, Inc.
Cadence Chemical Resources, Inc.**

**10:00 am Introduction to the Concept of Whole Tire Recycling as a Fuel Substitution
in Cement Kilns.**

**Presentation by Robert Campbell
Vice President - Marketing
Cadence Chemical Resources, Inc.**

10:18 am Scrap Tire Recycling Alternatives

**Presentation by Andrew Eastman
Senior Environmental Engineer
Goodyear Tire & Rubber Company**

11:00 am Cement Making, the Ideal Environment for the Destruction of Tires.

**Presentation by Bruce Ballinger
Plant Manager
ESSROC Materials, Inc.**

12:00 am Tour of ESSROC Cement Kilns

1:00 pm Buffet Lunch and Round Table Question and Answer Session.

2:00 pm Adjourn

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R E M I N D E R ! ! !

THE NEXT GOVERNOR'S ADVISORY COUNCIL ON RECYCLING MEETING WILL BE
HELD AT 9:00 a.m. ON APRIL 1, 1991, AT THE MARYLAND MUNICIPAL LEAGUE.
MINUTES WILL BE FORTHCOMING.



On behalf of the

- The Council's Plan of Work for 1991
- An Interim Report on package, bans and taxes, with recommendations
- An Interim Report on school programs to educate the public about recycling

Your Executive Order establishing the Governor's Advisory Council on Recycling requested that the Council submit a Plan of Work. This was done in early 1990 (and was included in the Annual Report for 1990). The Council has updated the plan for its program of work for 1991. The update is included here. Please note that the schedule of work (in the form of a Gantt chart) is now computerized so that the Council can check its progress and make corrections over time.

The Executive Order also charged the Council with examining programs necessary to educate the public on the need to participate in recycling efforts. This task has been broken down into several parts. A report on the first part, addressing possible programs for higher education, for grades K through 12, and possible State participation in the new Federal National Environmental Education Act, is enclosed.

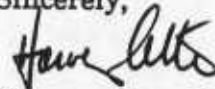
Your Executive Order establishing the Council charged the Council with, among other subjects, to **make recommendations** on "Determining costs, benefits, and effects of replacing certain **packaging materials** used in commerce with other recyclable materials and the role of these **materials** in recycling efforts." This is to report and recommend based on the Council's first phase of this assignment.

The Council has held extensive discussions regarding imposing bans, taxes or deposits on items in the packaging stream. Our discussions focused on the effects of such actions on recycling and solid waste management, while recognizing that there may be collateral effects, such as on business and consumer convenience.

Enclosed is a paper prepared by the Council on this difficult and sometime contentious subject. The paper contains recommendations that package bans and taxes are not in order; they will not assist recycling and indeed may interfere. The Council could not reach unanimity and perhaps not even consensus on the issue of beverage container deposits and recycling. The range of views held reflected the range expressed on the general subject of deposit legislation in the several debates on this issue in the General Assembly and elsewhere in the State. No recommendation is made concerning beverage container deposits, although the issue is discussed in the enclosed paper. We hope that this discussion will aid others as they consider this policy option.

As a general progress report, during 1990, the Council has addressed aspects of six of the nine assignments in your Executive Order. We have submitted recommendations to you on several, although, some of these are partial recommendations. The subjects are broad and we are addressing them in parts, such as in the two enclosed Interim Reports.

Sincerely,



Harvey Alter, Chairman
10 Watchwater Way
Rockville, Maryland 20850-2742

cc: Hon. Robert Perciasepe
Mr. Mark Wasserman
Mr. Gerald L. Thorpe
Members of the Council

February 18, 1991

State of Maryland
Governor's Advisory Council on Recycling

**PLAN OF WORK
1991**



1.0 Introduction

This plan is a continuation of the April 2, 1990 plan of the Council. It is intended as a supplement to the original plan. The two should be read together.

Not all of the 1990 plan was accomplished due, in large, to the growing base of knowledge and understanding among the Council members. Many of the tasks were addressed and it was realized that several have to be further addressed in parts.

2.0 Tasks to be Addressed in 1991

Figure 1 is a schedule or Gantt chart of the 1991 plan of work. Some of the tasks are planned to carry over into 1992. A brief description of the tasks listed follows.

2.1 Package reduction. This task was started in 1990 and examines the effect of bans, taxes and deposits on packages as a means of reducing the amount of municipal solid waste (MSW) and increasing recycling. (Note that a further task (2.6) is planned to further examine methods of waste reduction, particularly through recycling.

2.2 Education. This task has addressed increasing public awareness by education programs in grades K through 12 and at the post-graduate university level. The task also addresses recommendations for the State to become ready for implementation of the federal National Environmental Education Act of 1990.

2.3 Raise revenues. This task has addressed methods of raising revenues to support additional recycling efforts in the State and possible ways those revenues can be used.

February 18, 1991

2.4 State procurement. This task addresses methods of increasing the procurement of items by the State made of recycled materials, and thus helping provide a "demand pull" in the market for recycled products.

2.5 Economics and financing. This task addresses means of raising revenues in the State, counties and possibly municipalities to fund recycling efforts, including the construction of Materials Recovery Facilities (MRFs).

2.6 Waste Reduction. This task is a continuation of task 2.1 to explore additional means of reducing the amount of MSW destined for disposal by recycling and possibly other means.

2.7 Economic development. This task is at the suggestion of one of the Council members to explore ways in which the establishment of recycling activities can be tied into local economic development.

2.8 Public information. This task is related to 2.2 Education. It is directed at exploring and recommending means by which the State can increase awareness of recycling in communities and thus increase participation and yield of recycled products.

2.9 Product deposits. This task is at the suggestion of one of the Council members to explore ways in which product deposits may be used to divert materials from disposal and to recycling. Some of the products mentioned are lead acid storage batteries, appliances and tires.

2.10 ONP and tire markets. Markets for ONP (old newsprint) and tires are presently demand limited. Ways must be explored to increase the demand and hence the ability to recycle these materials in Maryland.

2.11 New MRF construction. This task will explore methods by which the construction of new and additional state-of-the-art MRFs can be encouraged. MRFs are processing plants that use a combination of machinery and hand labor to prepare separated materials to meet specifications for markets. Regionalization must be included in addressing this task.

2.12 Economic feasibility. This task will analyze the economic feasibility of recycling under different circumstances. The task is scheduled for study late in the year (and into 1992) when more data will be available on markets, participation and MRF economics.

2.13 Expand centers. This task, related to 2.12, is to examine how recycling can be expanded beyond MRFs and possibly service rural and high density housing, as contrasted to curbside pickup.

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2.14 Advancing MRFs. When this task is examined, there should be sufficient experience with MRFs to possibly understand how new and more efficient technology may be adopted in the State to advance the efficiency of recycling and better meet market specifications.

2.15 Rules and regulations. At some time, there will have to be State regulations governing the design and operation of MRFs and other recycling activities so as to protect public health. This is a difficult task, and possibly beyond the lay understanding of solid waste management and public health issues among the Council members.

2.16 Annual report. An annual report for 1991 is scheduled, as required. It is marked as a milestone on the Gannt chart.

3.0 Updates of the Work Plan

The 1991 Work Plan schedule is now computerized so can easily be updated from time to time. This will also provide a progress report for the Governor and others.

February 18, 1991

1991-1992 Work Plan Schedule
Governor's Advisory Council on Recycling

| TASKS | 1991 | | | | | | | | | | | | 1992 | | | | | | | | | | | | | |
|--------------------|------------|---|------------|---|------------|---|------------|---|------------|---|------------|---|------------|---|---|---|---|---|---|---|---|---|---|--|--|--|
| | J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | | | |
| Package reduction | ██████████ | | | | | | | | | | | | | | | | | | | | | | | | | |
| Education | ██████████ | | | | | | | | | | | | | | | | | | | | | | | | | |
| Raise revenues | | | ██████████ | | | | | | | | | | | | | | | | | | | | | | | |
| State procurement | | | ██████████ | | | | | | | | | | | | | | | | | | | | | | | |
| Econ. & financing | | | ██████████ | | | | | | | | | | | | | | | | | | | | | | | |
| Waste reduction | | | | | ██████████ | | | | | | | | | | | | | | | | | | | | | |
| Economic develop. | | | | | | | | | ██████████ | | | | | | | | | | | | | | | | | |
| Public information | | | | | | | | | | | ██████████ | | | | | | | | | | | | | | | |
| Product deposits | | | | | | | | | ██████ | | | | | | | | | | | | | | | | | |
| ONP-tire markets | | | | | | | ██████████ | | | | | | | | | | | | | | | | | | | |
| New MRF const'n | | | | | | | | | | | | | ██████████ | | | | | | | | | | | | | |
| Economic feasib. | | | | | | | | | | | ██████████ | | | | | | | | | | | | | | | |
| Expand centers | | | | | | | | | | | ██████████ | | | | | | | | | | | | | | | |
| Advancing MRFs | | | | | | | | | | | ██████████ | | | | | | | | | | | | | | | |
| Rules & regulation | | | | | | | | | | | ██████████ | | | | | | | | | | | | | | | |
| Annual Report | | | | | | | | | | | ██████████ | | | | | | | | | | | | | | | |
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STATE OF MARYLAND

Governor's Advisory Council on Recycling

Agenda - May 6, 1991



The meeting will be held beginning at 9:00 a.m. at the Maryland Municipal League, 1212 West Street, Annapolis. Dr. Harvey Alter will be out of the country, therefore, Mr. James Pittman will Chair the meeting.

- 1) Convene, Self Introductions and Adoption of Minutes
- 2) MDE and Other Member Reports
- 3) Continued Discussion of Raising Revenues for Recycling and their Disposition - Barry Scher
- 4) Reports on Task Groups
 - o Procurement, Michael Gagliardo
 - o Waste Reduction, Paul Hollinger
- 5) Old and New Business
- 6) Adjournment

Pending Topics in Addition to Executive Order

The following are in order of Priority from the September Meeting

- o recycling as an economic development tool
- o recycling without changing practices in solid waste management
- o new construction requirements for recycling
- o possible deposits on appliances, tires, lead-acid batteries

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Governor's Advisory Council on Recycling

June 3, 1991

Minutes



Members in Attendance:

Dr. Harvey Alter, CHAIRMAN
Mr. Michael Gagliardo, Northeast Maryland Waste Disposal Authority
Mr. Lawrence J. Hayward, packaging industry
Mr. George Hudnet, solid waste industry
Mr. Lenny D. Minutillo, Jr., food and beverage industry
Dr. Dan K. Morhaim, general public
Dr. Michael Pelczar, Jr., environmental community
The Honorable Joan B. Pitkin, Maryland General Assembly
Mr. James Pittman, Maryland Department of the Environment (MDE)
Mr. Barry F. Scher, Maryland Food Dealers Association
Mr. Michael Taylor, Maryland Environmental Service
(representing Mr. George Perdikakis)

Members Absent:

Mr. Paul Hollinger, packaging industry
Mr. James F. Katcef, food and beverage industry
The Honorable Regina J. McNeill, Maryland Municipal League
Mr. Thomas Redmond, Sr., recycling industry
The Honorable Gerald W. Winegrad, Maryland State Senate

Others in Attendance:

Mr. Glenn Dodson, MDE
Mr. Kristen Hughes, Maryland Association of Counties
Ms. Lori Scozzafava, MDE
Mr. Marcus Sharx, Wheelabrator

The regular monthly meeting of the Governor's Advisory Council on Recycling was held on Monday, June 3, 1991 at the Maryland Municipal League with Dr. Harvey Alter, Chairman, convening the meeting. A correction was made in the May 6, 1991 minutes. On Page 3, Packaging, paragraph three was changed to read... Senate Bill 680 suggested a \$1.50/ton fee on waste... The minutes were adopted as corrected.

Dr. Alter introduced Ms. Lori Scozzafava, the new Chief of the Office of Waste Minimization and Recycling for MDE. Ms. Scozzafava gave a brief overview of her biography. Copies may be obtained by contacting her personally.

Dr. Alter was asked to attend a conference in Europe with a U.S. Government delegation to discuss recycling. U.S. metals trade is about \$5 billion/year. Within the OECD, the trade in secondary materials is about \$18 billion. Europe depends heavily on the U.S. for certain grades of paper and on non-ferrous metals. From Dr. Alter's observations, he felt that Europe was very far behind the U.S. in the business of recycling. He also stated that BMW's development of an all recyclable car was caused due to the lack of another market for scrap cars. They either were abandoned or landfilled.

Discussion of SB 680

There was a discussion of SB 680, a Bill sponsored by Senator Winegrad which proposed a \$1.50 fee payable by the owner/operator of each sanitary landfill. The monies, after administrative cost are deducted, will be deposited in the State Recycling Fund. The Fund would be used to provide grants to counties for a variety of projects to include maintaining a recycling coordinator, implementation of recycling plans, and MRF development. Also, a portion of the Fund will be used for loans or loan guarantees. Copies of this Bill were distributed at the May meeting. If you require a copy, please contact Mr. Glenn Dodson.

Dr. Alter distributed a distribution schedule for each county as would occur with the passage of SB 680. Dr. Alter made the point that with this across the board breakdown, the money for the counties that are most in need may not be substantial enough to make an impact. He believes that the best way to raise funds is with a waste end tax on a weight basis but the down side is that there is a temptation to keep raising it every year. You must also determine which waste is to be taxed (e.g. municipal waste, rubble, etc.) Dr. Alter believes that before money is raised, you should determine what is going to be done with the money. He suggested two alternatives: (1) create a list of approved activities that the counties can do and give them a block grant that they could use to implement an activity or submit a plan for an innovative activity not listed; or (2) the State can stimulate recycling programs at the margin. Suggested activities for the block grant are: travel expenses, technical innovation, public education, and mechanical repairs. Suggestions for stimulation at the margins are: investment for university programs, small business incubators, county travel, mechanical repairs, and a consultant to be utilized by the counties. Dr. Alter suggested that the money should be distributed based on the quality of county proposals to the State and not on a solid waste or population figure. Mr. Pittman expressed his agreement with Dr. Alter that solid waste or population may not be the best way to determine funding from the State. Mr. Pittman stated that there is money available in the Solid Waste Facilities Loan Act. Dr. Alter stated that the money could also be awarded for demonstration and replication. Mr. Larry Hayward indicated that there may be a problem in some individual opinions with the larger counties financing the smaller poorer counties. Mr. Kristen Hughes believes that there is a very real problem that Municipalities and Counties are facing and they are strongly opposed to "dedicated source revenues." Removing a revenue stream that could go to funding other waste costs to the counties is very unappealing. By strictly designating this money for recycling, you take away the counties' flexibility to use the money for other solid waste management. Mr. Hughes believed that "how" to collect the money is a more difficult decision than what to do with it when it is collected. Mr. Hughes believed that in dedicating revenues, the State begins to infringe on the counties right to manage their own solid waste. Dr. Alter disagreed. Mr. Hughes stated that the method of financing should be determined by the counties. The counties are opposed to any State method of raising revenues regardless of how it will be distributed.

Mr. Hughes indicated that his comments do not stem from a formal position from MACO by vote on SB 680 but rather the absolute policy that has continued for years in the County. Mr. Hughes stated there is a State role in recycling at some level. Determining where revenues will come from is the pressing question.

In response to Mr. Hughes' statement that the counties do not want dedicated funds, Delegate Pitkin interjected that counties had no problem with raising the marriage license fee to provide domestic violence shelters. Mr. Hughes added that his statement has exceptions.

Ms. Scozzafava explained the New Jersey system of distributing funds to jurisdictions. She stated that New Jersey has funds available on both a per ton, and per capita basis as well as special funds for bonus grants. The New Jersey law broke down how the funds should be distributed. Dr. Pelczar recommended that the Council support raising revenues in some manner for recycling.

Dr. Morhaim agreed that funds must be raised for recycling by the State through a State tipping fee, etc. He also suggested that counties will most likely combine their efforts to receive more funds. Mr. Hayward agreed that the funds may not totally support programs but they will have an added benefit no matter how small.

Mr. Michael Gagliardo stated that even with limited resources, most of the counties have done a good job and are implementing part of the law. Some counties are already doing what is in Senator Winegrad's Bill. Baltimore City is developing a commercial recycling incentive - "make it more expensive for businesses to dispose waste and they will reduce their waste." Mr. Gagliardo is wary of a continued funding source but he recommended a one-time fund that will end at a designated time. This would be much like the Solid Waste Facilities Loan Act. Funds will be provided through loans and grants. These funds will stimulate the infrastructure of county programs.

Mr. Michael Taylor gave a brief description of the Solid Waste Facilities Loan Act. It has \$4 million from 1989 and \$2 million from the 1991 Act. Applicants can receive up to \$1 million in loans for design engineering and feasibility studies. There is approximately \$1 million of grant money available for capitol expenditures (50% match). Mr. Taylor stated that about \$4.6 million is remaining in the loan program. The reason for many counties reluctance to apply for money in the past may be that they were still in the planning stage and these monies would not apply. Mr. Hughes was concerned that if money was only awarded on the merit of the application that small counties who cannot compete with the more affluent counties will be slighted. Mr. Hudnet would not support SB 680 at this time and feels that the State should give the counties some time to sort out their individual financing situations.

The Council is in agreement with collecting money at the waste end for investment at the margin.

Dr. Alter will write up a recommendation that is tempered because of the less than unanimous vote in support of this issue. The report will be distributed to members for review. The next meeting will focus on the discussion of the draft and reports from the task group. The next meeting is scheduled for July 1, 1991 at the Maryland Municipal League from 9:00 a.m. to noon.

Governor's Advisory Council on Recycling

July 1, 1991

Minutes



Members in Attendance:

Dr. Harvey Alter, CHAIRMAN
Mr. Lenny D. Minutillo, Jr., Food Service
Mr. George Hudnet, solid waste industry
Mr. Michael Gagliardo, Northeast Maryland Waste Disposal Authority
Mr. Paul Hollinger, packaging industry
Mr. Jim Katcef, food and beverage industry
Mr. James J. Pittman III, Maryland Department of the Environment (MDE)
Dr. Dan Morhaim, general public

Others in Attendance:

Ms. Lori Scozzafava, MDE
Mr. Glenn Dodson, MDE
Mr. Bill Burroughs, PolySource

The regularly scheduled monthly meeting of the Governor's Advisory Council on Recycling was held on July 1, 1991 at the Maryland Municipal League with Dr. Harvey Alter, Chairman, convening the meeting. Minor changes were made on the minutes. In the "Others in Attendance" section, Mr. Marcus Sharx should read Marcus Marx. Page three, paragraph one should read... The absolute policy that has continued for years in MACO.

It was suggested that the annual meeting be held at the Department of Natural Resources (DNR) Facility on Wye Island on September 5th or 12th. This meeting will be an all day session and will include planning for the upcoming year.

This was Lenny Minutillo's last meeting. The Executive vice-president of the Restaurant Association of Maryland, Marcia S. Harris, has written Dr. Alter and recommended Mr. William Watkins as his replacement.

Staff Report

Ms. Lori Scozzafava, Chief of the Office of Waste Minimization and Recycling reported on some recent activities. She stated that a meeting was held with representatives from 13 jurisdictions to discuss the joint EPA, A.T.Kearny, MDE, generic public education and promotion campaign. The project was generally accepted by the attendees. MDE is preparing these materials for distribution to interested jurisdictions.

MDE has instituted an outreach program that will entail visiting most of the counties, meeting with the coordinators, and touring some of the facilities. Calvert, Charles, and St. Mary's Counties were recently visited.

MD 43. RE 33: 2/9/1991

MDE will now take the lead role in the implementation of the State Agency Recycling Program. There will be more focus on promotion of the Program. MDE is currently developing a unified slogan and an outreach campaign. Dr. Alter suggested that these materials be introduced to the Council.

Recently The EPA Region III Annual Recycling meeting was convened at MDE. The participants included representatives from Maryland, Virginia, West Virginia, Delaware, and EPA. Ms. Scozzafava announced that the Office of Waste Minimization and Recycling is regreably losing an employee and MDE is implementing procedures to fill this vacancy.

Discussion of the Draft "Interim Report on the Economics and Financing of Existing and Proposed Systems of Solid Waste Recycling and Facilitating the Implementation of Recycling Goals."

In response to the recommendations on page six of the report it was suggested by Mr. Gagliardo that all related recycling funds, ie. the Solid Waste Facilities Loan Act, should be consolidated. This would entail the Legislature's repeal of previous funds. Dr. Alter explained that "one-time" means that the fund is raised over a one year period and then discontinued. Mr. Gagliardo explained that Baltimore City has proposed a \$7.50/ton surcharge which will go to their General Fund. A recycling surcharge as a percentage of a citizens bill will be implemented if Baltimore County implements a similar system. It was stated that this is just a revenue raising project and not for the betterment of recycling. Mr. Pittman suggested that the report should clearly define what is meant by stimulation at the margin. The members should develop a list of accepted margin activities. Mr. Borroughs questioned whether the State should tax the county on their waste and then possibly take that money from the county when each county is responsible for its own waste. Dr. Alter replied that the alternative, which would be to give the county money in accordance with the waste it produced won't provide enough money to any one project. Mr. Gagliardo suggested that the existing money remaining in the Solid Waste Facilities Loan Act be pooled into one program and then totals be determined for each program (education, travel, etc.). DEED provides many services and it was suggested that some money may be allocated to them.

MES is requested to provide an update on the remaining funds in the Solid Waste Facilities Loan Act.

Mr. Hollinger has difficulty with accepting the concept of raising revenues without a specific goal and he believes that paper in landfills should be targeted. He stated that this may be accomplished by providing funds for processes to recycle paper (Deinking, curbside collection, etc.). Dr. Alter stated that money should not be available for curbside recycling because the money would not make an impact on the high operating costs. It was stated that the money should be distributed to the counties for what they determine is their need.

Dr. Alter will re-write the Report to include the comments and bring this to the attention of Mr. George Perdikakis and Senator Gerald Winegrad. This report will in effect complete the topic initiated by Mr. Barry Scher. The second draft report will be distributed to the members for comment.

Task Group Reports

Waste Reduction

Mr. Hollinger stated that there have been many misconceptions about which packaging is good and which is bad. He passed around a model of a special self-Pelletized shipping system. This system could be used for industrial packaging in a closed loop system and thus reused. Ms. Scozzafava requested information from Mr. Hollinger on the durability of this item. Mr. Hollinger stated that the emphasis of reduction should be on paper and not on packaging. Dr. Alter stated that packaging as a percentage of waste is decreasing. Mr. Burroughs questioned if packaging should be targeted knowing their advances in reduction.

Dr. Alter challenged the members to develop specific recommendations for waste reduction through packaging. Mr. Hollinger was asked to provide a list of examples where waste reduction can be illustrated.

Procurement

Mr. Gagliardo distributed information concerning many of the State's procurement activities. State, local and private purchasers were included in this material. Mr. Gagliardo will draft an Interim Report and provide it to the members for comment. He stated that most of the major purchasers are providing for recycled paper products at the government level. Mr. Gagliardo was asked to include some analysis of the price of recycled products in the report.

There was a question asked concerning the definition of "recycled". Ms. Scozzafava stated that the National Recycling Coalition is addressing this issue presently and she will keep the members informed on this issue.

The meeting was adjourned. The next meeting is scheduled for August 5, 1991, at the Maryland Municipal League from 9:00 a.m. to noon.

H. ALTEL

The Wastefulness of Waste Management

Widener University
President's Lecture

Presented by Prof. Ronald L. Mersky
October 24, 1990

We are in a time when solid waste issues have become a major topic of discussion and controversy in the media, the statehouses, the Congress and even casual conversation. It is somewhat amazing that a subject that, until recently few wished to even think about, has become so popular.

The obvious explanation for this newly acquired celebrity status of garbage is that we are facing a solid waste "crisis". That is to say that we are rapidly running out of places to put our waste, and those places that are available have become very expensive.

It is tempting to make comparisons with the "energy crisis" of the 1970's (which, as I recall, we never did solve) when a similar situation existed with respect to oil supplies. But as an engineer working in the solid waste field I cannot see much similarity. While our petroleum supply is very limited and largely controlled by nations which are unstable and hostile towards us, the supply of solid waste disposal options is quite good and domestically available. In fact, technological advances of the past few years have provided us with many new options for waste management.

So just what is the basis of the solid waste crisis facing this country? My experience over the last few years has shown that if we do indeed have a crisis, the cause is not a lack of technological solutions for solid waste disposal. Rather it is a basic lack of understanding of solid waste issues on the part of the public, and, unfortunately, also on the part of some elected leaders. These political leaders, in a rush to solve the perceived crisis (or at least convince their constituents that they are doing so) have begun to enact legislation which, rather than improving the situation, has instead wasted considerable resources (both financial and environmental) and made a proper solution to our solid waste problems even more difficult.

In my presentation today, I will discuss some of the common misconceptions that I have encountered in solid waste management and some of the unfortunate legislative results of those misconceptions. My goal is to demonstrate that proper solid waste management is not a simple task with simple solutions that can be easily explained to a public with no technical background by a 30 second network news report. Neither is it a task which should be accomplished without regard to related matters such as environmental concerns, energy concerns and economic concerns. Rather, solid waste management is a highly complex interdisciplinary field which can only be handled properly by the efforts of those who are willing to accept that fact.

Specifically, I would like to direct my remarks today to three of the solid waste misconceptions (or myths as I refer to them) which are prevalent in the public. I have named these three myths: THE TOOTH FAIRY; SHOULD KILLER PLASTICS BE DEGRADABLE?; and SMOKE GETS IN YOUR EYES.

THE TOOTH FAIRY

Most of us who grew up in the U.S. are familiar with the tooth fairy story. When a child loses a primary tooth, his parents encourage him to place that tooth under his pillow at night. When he awakens in the morning, the tooth has mysteriously disappeared and in its place is a coin. In my childhood, a dime was the going rate for a tooth. I would assume that in today's market inflation has taken its toll.

Today, many adults still believe that the tooth fairy exists. Only it is not an outgrown tooth that is the subject of the adult version of the myth -- rather it is solid waste. Many grown-ups feel that their trash has value, and if they handle that trash in the correct manner, somehow money will appear in its place. The idea is very attractive -- after all, solid waste is something we normally must pay to dispose of. It would be very nice if someone were to come along and pay us for this material instead. We have even given the adult version of this myth a name -- we call it recycling.

I would like to make it clear, before I continue, that my intention is not to attack the concept of recycling as a whole. In many cases, recycling is the most economically and environmentally sound way of handling a waste material. Unfortunately, recycling is not always the best option available. Yet many people have lost site of that fact.

The concept that recycling is always good has become common in our society because, when looked at from a simplistic viewpoint, it appears to be a perfect system: if a waste product is recycled, disposal is no longer a problem, we don't have to use a virgin material that may be in short supply, and some income can be earned from the sale of the recycled material. However, there is also a negative side to recycling, and a recycling program that is inappropriately enacted can have strong negative effects economically and environmentally.

Let us look, for example, at one of the most widely targeted materials in recycling programs today --old newspapers. Newspaper recycling is nothing new. For decades, old newsprint has been an important raw material in the manufacture of paper products. What is new, however, is the idea of recycling newsprint for the purpose of waste management. In the past, old newsprint has been recycled primarily because there was a need for it as a raw material for certain products.

In most communities that recycle, newsprint is one of the most attractive materials to recycle from a waste management viewpoint. That is because newsprint in a typical community makes up about 30% by volume of the material going into the landfill. Furthermore, newsprint is easy to separate and collect.

However, separation and collection alone do not constitute

recycling. Unless a collected material can be returned as a useful product, recycling has not taken place. And while there is a great incentive to remove newsprint from the landfill, there is no great incentive to make products out of old newsprint. As a result, the newsprint market today is one of oversupply and limited demand.

To understand this, let us examine what happens when newsprint is recycled. There are two main uses for recycled newsprint -- recycled boxboard and new newsprint. There are also some minor uses such as packing materials and such, but those are very small players in the market. The boxboard market in the U.S. is already well satisfied by recycled newsprint -- expansion there is unlikely. Therefore, the only feasible way of recycling more newsprint is to use more of it in the production of new newsprint.

Now, let us take a look at the possibility of utilizing more old newsprint in the production of new newsprint. Table 1 provides data for production and consumption of newsprint in the U.S. for 1988. Consumption of newsprint was 13.8 million tons. Of that amount, 8 million tons, or 58% was imported from Canada - almost all of it made from virgin fibers. Almost all of the remaining 42% was domestic production.

Table 1 -- 1988 U.S. Newsprint
(million Tons)

| | |
|--------------------------|------|
| Total Consumption | 13.8 |
| Domestically Produced | 5.8 |
| (1.3 from old newsprint) | |
| Imported From Canada | 8.0 |
| Collected | 4.7 |

Now, let us compare this to the amount of old newsprint collected in 1988 -- 4.7 million tons. Approximately 1.3 million tons of that was used by domestic mills, representing about 23% of their total raw material furnish. The rest was either exported, stockpiled or used for products other than newsprint.

Now, in recent years, we have seen a dramatic drop in the prices paid for old newspapers. Not too long ago, communities in this region with newspaper recycling programs were receiving 10 or 20 dollars a ton -- the tooth fairy was doing her job. Today, some communities are paying 25 dollars a ton to have someone take their newsprint away for recycling -- the tooth fairy has wised up to what has been happening in the market. And it should come as no surprise when we look at the data in Table 1.

If newsprint manufacturers were suddenly required to accept as much old newsprint as was offered to them, the 4.7 million tons collected would already represent 81% of domestic production. As more and more communities begin to recycle, we will soon reach a point where domestic demand cannot possibly match supply. This is the myth of newspaper recycling. We can separate and collect as much as we want, but unless there is a

market, we will not be recycling.

The reason why so much newsprint is collected is quite clear. In recent years, several states and localities in this country have established mandatory recycling programs. Here in Pennsylvania, for example, most communities will become subject to mandatory recycling within the next year as ACT 101 takes effect. Mandatory recycling is also the law in New Jersey, New York, Rhode Island and other places. Each new community that begins to recycle represents an addition to the supply side of the market. Since the domestic demand is limited, there must be exports to absorb this new supply.

In general, foreign recyclers have high regard for U.S. scrap newsprint. Why? Well, according to a recent presentation by the president of the American Paper Institute, one reason is that U.S. paper has a high virgin long-fiber content.

Now, the reason why newsprint prices have fallen recently is simply increased supply combined with lack of domestic demand. Exports involve additional transportation, especially from the East coast. Furthermore, buyers are not foolish -- they understand that supply is no longer a function of the free market, but rather of government mandate. If a reliable increasing supply is available at any price, why should a buyer pay a high price?

So what we have is a situation where a previously free market has been disrupted by a government mandated increase in supply. How have the state governments responded to this market imbalance? Simple -- they have tried to also mandate demand. A recent law in California requires that newspaper publishers in that state use at least 25% recycled paper by 1996 and 50% by 2000. In Connecticut, a similar bill requires the usage of at least 20% recycled paper by 1993, increasing to 90% over four years. In both cases, exemptions are allowed if a supply of recycled newsprint is not available at a comparable price.

Some states have tried to encourage demand by requiring state agencies to purchase recycled paper for office use. The problem with that approach is that old newsprint cannot be made into writing papers, but this fact has not seemed to concern the state legislators who are passing these laws.

Now, what has been the impact of this government caused oversupply in the newsprint market? Well, one effect has been that private recyclers have been put out of business. Many of them were charitable groups. A study of about thirty drop-off newspaper collection boxes operated for charities in Seattle showed a 33% decrease in volumes collected in the first year after curbside recycling began and a 43% decrease after 18 months. The Wilmington News Journal has a column called "helping hand" which answer readers' questions. In September of last year, a reader wrote "Now that the Lions Club, schools and scouts no longer take old newspapers, who will take them?". The answer was "Right now, no one except the trash man".

Another effect has been that some communities are paying a high price to comply with the law. When the cost of paying to have newspapers recycled plus the cost of separate curbside collection is compared to the cost of other disposal options, recycling of newsprint is probably not the most economical option

for some communities. Then there is the energy impact -- how much petroleum is consumed by having separate collections for recyclables? And what about the efforts in time and inconvenience for the citizens who must separate their recyclables?

Can we succeed in stimulating the market to accept more recycled newsprint? A recent survey of Missouri newspaper publishers showed very little use of recycled newsprint. Reasons cited were availability, quality and high price. What does this mean for the success of the previously mentioned California and Connecticut attempts to mandate recycled usage? Remembering that the future for recycled demand is in exports, will overseas buyers still want U.S. newsprint if such attempts do succeed and the virgin fiber content drops? Furthermore, it should be remembered that market stimulation is simply a way of compensating for a lack of a free market by making it even less free.

The rush towards recycling is continuing, however. Here in Pennsylvania, there is a goal of recycling 25% of the solid waste stream. The state of Maine has set a goal of 25% by 1992 and 50% by 1994. Virginia wants 10% by 1991 and 25% by 1995. California wants 25% by 1995 and 50% by 2000. Other states and communities have set similar goals.

This setting of goals for recycling programs is fast becoming an American tradition. It reminds me of another American tradition -- the pie eating contest. You may win an award for eating the most, but you also suffer the gastric consequences. Eventually one state will recycle more than any other and perceive itself to have won the contest, but have any of these states really figured out what a 10% or 25% or 50% recycling rate will mean in terms of economic costs, the environment and other factors?

For the past three years I have served as Program and Planning Chair of the International Conference on Solid Waste Management and Secondary Materials which is held in December. Last year at about this time I received a letter. Inside was a registration card for the Conference. But rather than being filled out with the usual registration information, it contained the following message "Is this form printed on recycle paper? I can't tell? I think you should make it clear you do use recycle bond for your printing purposes. Sorry I can't attend"

The envelope in which the note arrived bears the return address of a major company in the solid waste management field along with a prominent notation "Printed on recycled paper". I wonder how much ink has been used to place "Printed on recycled paper" on the millions of items being issued by companies and organizations that wish to demonstrate their commitment to saving resources? How much pigment has been introduced into the environment in these attempts to show environmental concern? How much waste is generated by the posters, keychains, pamphlets, stickers, etc. used to promote recycling as a means of waste reduction?

As I stated previously, my intention is not to say that recycling is bad. To the contrary, I feel that in many cases recycling is wonderful. Some recyclable materials, such as

aluminum, have responded well to government mandated increases in supply. But I am saying that recycling has negative aspects as well as positive, and while recycling should be considered as an option in waste management planning, it should not be mandated for all communities, because for some communities it is not the best option.

There is an old expression that says than when you are busy fighting off alligators, it is difficult to remember that your overall goal is to drain the swamp. Recycling is an alligator, and too many people have lost sight of the fact that their goal is not to recycle more, but rather to manage wastes in an environmentally and economically sound manner.

SHOULD KILLER PLASTICS BE DEGRADABLE?

During a recent gubernatorial election in a nearby state, one of the candidates proudly stated that as Governor he would ban "killer plastics" from his state. Putting aside images of a black-and-white film depicting a giant Baggie devouring Tokyo, one must wonder what prompted such a statement. The answer that occurs to me is that this candidate was hoping to capitalize on a perceived public opinion that plastics waste is somehow the cause of our solid waste "crisis".

This candidate's attack on plastics is not an isolated incident. For some reason, plastics have borne the brunt of attacks against particular products in the waste stream. To cite a few examples:

Suffolk County, New York in 1988 passed a law prohibiting retail establishments from using plastic packaging, bags and utensils. In Iowa, a recent senate bill bans the use of plastic cans. Minneapolis and St. Paul, Minnesota banned all plastic food packaging that is neither degradable or technologically recyclable. In Massachusetts, some legislators want to tax products in plastic containers. A recent bill in Oregon would ban various non-degradable plastic items. Even the U.S. Congress has gotten involved. Almost 100 members of the House have encouraged that polystyrene foam be banned from the House food service.

Why plastics? The most serious drawback to plastics is that production of most plastics consumes petroleum. And, as we see today, our dependence on petroleum can put our economy at risk and even provide despotic regimes with the financial and political means to create military threats - to each other and the rest of the world.

But most public criticism of plastics ignores the oil problem. An editor of Recycling Times, writing in the journal Waste Alternatives last year explained why polystyrene - a particularly attacked plastic - is a problem: "Several features make polystyrene an unattractive solid waste: it will not biodegrade if landfilled; some products are manufactured with harmful chemical compounds that could deplete the earth's ozone layer if released;...volume is a problem; and, no system to source separate and recycle polystyrene has been implemented". While her remarks were directed against polystyrene in

particular, these concerns have found there way into the public with respect to plastics in general.

Let us look at these perceived problems.

Ozone Depletion: It is true that until recently some polystyrene products were manufactured with fully halogenated chlorofluorocarbon (CFC) compounds that can endanger the ozone layer. But these have been replaced voluntarily by the industry and are no longer a problem in new polystyrene products.

Volume: Yes, it is true that plastics are a significant portion of the municipal solid waste stream (about 7% by weight and 30% by volume). But these volumes would not be eliminated if plastic products did not exist. Rather the plastic products would simply be replaced by similar products made of other materials. In some cases the replacement products would have greater volumes than the replaced plastic products (compare, for example, the volume of a plastic yoke that holds together a 6-pack with the volume of the cardboard box that was previously used). Furthermore, it should be remembered that the quantity of plastics in the waste stream is simply a reflection of features that make plastics attractive to consumers (non-breakable, lightweight, etc.)

Degradability: As an engineer working in the solid waste management field, I am confused as to why lack of degradability should be a problem. To the contrary, non-degradability is one of the best features a waste product can have.

We have all heard or read about environmental problems that can occur at landfills -- leachate contaminating groundwater, harmful and flammable gases being released, odors, etc. These problems are largely the result of waste degradation in the landfill. If every waste product going into a landfill were non-degradable, we would eliminate almost all of the environmental problems associated with landfills.

But there are nevertheless those who feel that degradability is a positive characteristic in a waste product. One common misconception is that degradable wastes somehow save landfill space. A recent article in the Delaware Business Review reported that public opinion polls show most people feel that if all wastes were degradable there would be no solid waste problem. There seems to be a perception that degradable items just go away. This, however, does not happen.

Modern landfills are designed to prevent degradation. By the time a waste product would degrade, the landfill would already be closed and capped and there would be no possibility of reusing any space created by waste degradation. Furthermore, degradable items must degrade into something -- and that something includes the leachate products and gases previously mentioned.

Some who advocate degradable plastics feel that such products would help eliminate litter and the harm that some plastic litter (such as 6-pack yokes) can cause to wildlife. Of sixteen states that require 6-pack yokes to be degradable, nine do not define what is meant by degradability and only six specify time frames in which the degradation should take place. Those time frames vary from 120 days in Florida to five years in Minnesota.

Litter is primarily a social problem, not a waste management

problem. And any community that would allow its litter to sit uncollected for five years waiting for it to degrade has a more serious problem to worry about. Furthermore, metal and glass litter also do not degrade rapidly but there is no public call for changes in those materials.

With respect to wildlife, litter from some plastic products does pose a threat, but degradable plastics do not simply degrade into nothingness. They merely break down into smaller pieces which are more easily swallowed by animals and with long term health effects that are not well understood.

It is even possible that degradable plastics might contribute to litter. The president of Keep America Beautiful has mentioned a fear that knowing a product is degradable might be used as a justification for littering.

There may be some good uses for degradable plastics such as products intended for ocean dumping and composting bags. But in general, the degradable plastic bags that have come on the market in recent years are sold merely to satisfy public misconceptions. In a recent article, a representative of Mobil Chemical said that degradable plastics are not the answer. But his firm makes degradable Hefty bags because of competition and the previously mentioned Florida law.

Recycling: Although plastics recycling was minimal a few years ago, many communities are now successfully recycling plastics and their number is increasing rapidly. What is unfortunate is that much of this recycling is being done to satisfy a public and legislators who do not understand that recycling is not the only option. And it is unfortunate. Plastics are often best suited for energy recovery, not recycling. But in order to satisfy a misinformed public, valuable energy and money are being wasted.

SMOKE GETS IN YOUR EYES

The final myth I wish to discuss is the myth that incineration of solid waste with energy recovery causes air pollution.

There are currently about 135 solid waste incinerators in use in the U.S., 120 of which recover energy. They process 13% of U.S. trash. About ninety more are under construction and by 1992, a little over 25% of U.S. municipal solid waste will be burnt. As many as 200 more facilities are under consideration. Here in Chester, the third largest energy recovery plant in the country will begin operations in January.

Many individuals and environmental organizations oppose this trend towards burning. Their major area of concern is the atmospheric emissions produced by these plants.

There is no question that municipal solid waste incinerators produce unwanted environmental by-products. Viewed only as a waste management tool, energy recovery plants can be considered a source of pollution.

But an energy recovery facility is not just a waste disposal tool. It is also a power plant. Given that a certain level of electric power production is required in the U.S., some fuel must

be used to produce that power. Petroleum is, as previously discussed, a poor choice. Natural gas is currently plentiful but still subject to certain limitations. Nuclear power plant construction is indefinitely on hold. In practice, coal is the fuel of choice for future power plants.

Table 2 shows the estimated emissions for an energy recovery facility being built at the Brooklyn Navy Yard in New York and a coal burning power plant of comparable power production capacity. While the emissions of individual pollutants vary, the overall emissions are comparable.

Table 2 -- Emissions
(Tons/Year)

| Pollutant | Brooklyn Navy Yard Facility | Industrial Coal Boiler |
|-----------------|--------------------------------|---------------------------|
| Particulates | 161 | 486 |
| SO ₂ | 1177 | 1847 |
| NO ₂ | 2973 | 3403 |
| CO | 366 | 187 |
| HC | 66 | 56 |
| Lead | 14.5 | 3-5 |

If the energy recovery plant were not built, coal fired power production would very likely be needed instead. When one considers that an energy recovery facility negates the need for a coal fired plant, it can be said that there is no net atmospheric pollution from energy recovery. And, unlike coal mining which has its own environmental concerns, the acquisition of fuel for an energy recovery plant reduces a waste disposal problem.

THE ANSWER

A short time ago, someone on campus mentioned to me that she asks for paper bags, rather than plastic, in the supermarket. Her reason was that paper bags are better for the environment.

Not wishing to miss an opportunity to make a point, I explained the following: If her trash were sent to a landfill after collection, using the plastic bag would be more environmentally friendly from a waste management viewpoint because it would take up less landfill space and not degrade into possibly harmful by-products. If her trash were incinerated, the plastic bag would burn more cleanly if it did not contain heavy metals in its pigments. If it did contain such pigments, the paper bag would probably result in cleaner emissions.

If her town recycles, it is unlikely that the brown bags used in supermarkets would be acceptable for recycling since there is a very limited market for them. Some supermarkets in the area accept plastic bags for recycling, but not all.

She should, of course, also consider the environmental impact of the manufacturing of the bags. Paper manufacturing is a very polluting operation while the production of polyethylene bags is

relatively clean. However, the paper bag is made from renewable trees while the plastic bag uses limited oil.

Based upon this information, she should evaluate her choice each time she shops, as conditions do change.

I tell this story to show that solid waste decision making is a complex process. Given this complexity, how can we manage our solid wastes in the most environmentally and economically sound manner?

To answer that question I would like to first identify the major problem with solid waste management in the U.S. today: The generation of solid waste is a free market process, but the disposal of solid waste is a socialistic process.

When a consumer purchase a product that will eventually become a part of the waste stream, the choice is dependent on price, convenience, product appearance and other perceived differences between that product and others. In this way the consumer chooses a soft drink in an aluminum can rather than a glass bottle or a disposable diaper instead of a cloth one.

When the consumer's trash is collected, however, it does not matter if one small can is collected or several large cans - the price is the same in most communities. This is true where municipal collection is provided with funds from the general tax base as well as in those areas where residents contract with a private hauler.

So while the consumer makes a free market choice to purchase a product, there is no economic incentive to reduce the amount of waste being disposed of. It is this incompatibility between the economic systems of waste production and waste disposal at the consumer level that creates the solid waste problems we face today.

Many of our legislators have attempted to correct this incompatibility by socializing the production side of consumer waste. The product bans, proposed taxes on plastics and other such measures that I have previously mentioned are all examples of such attempts. Others have attempted to socialize disposal even further by mandating recycling.

The problem with such attempts is that they create very expensive governmental bureaucracies that are economically inefficient. Furthermore, they limit consumer choice and reduce flexibility in choosing among waste disposal alternatives.

I propose that the answer is to move in the other direction and introduce the free market to waste disposal. In particular, this would involve the following:

- 1) All waste processing and disposal facilities must be environmentally sound. This might include requiring liners and caps for all landfills as well as the establishment of a maintenance fund to cover any repair or remediation work required after closure. Recycling and energy recovery facilities might also be subject to more stringent requirements. Such measures will increase the cost of waste disposal, but today's costs are a relative bargain and the long term costs of improper environmental management far outweigh the short term costs of proper management.

- 2) Waste collection should be charged on a per container or

per pound basis. And the cost must reflect the true cost of collection, transfer, transport, processing, and disposal in an environmentally sound manner.

Once consumers are faced with paying the true cost of disposing of their generated wastes, there will be no need for mandated recycling or product bans. A consumer may decide to use a disposable diaper and pay for its disposal or a cloth diaper and avoid that cost. A consumer may purchase a product in a non-recyclable container and pay for disposal or make a recyclable purchase. The consumer who has an aluminum can to dispose of may throw it in the trash and pay for its disposal or, instead, recycle that can at whatever price is being paid by a competitive, non-subsidized secondary materials market.

Some might argue that without mandated recycling, most consumers will not recycle. If the true total cost of waste disposal were reflected in the collection cost, I suspect that a viable recycling market would flourish. Before mandatory recycling drove them out of business, private recyclers existed despite socialized collection. And if a particular material is not often recycled, that will simply be a reflection of market conditions. If a shortage for that material occurs, the market will respond to remove that shortage.

In recent years, some communities have begun to experiment with volume or weight based collections. Unfortunately, these communities often still subsidize recycling or fail to reflect the true cost of disposal in collection fees. I suspect that in the near future, however, as the costs of inefficient waste management by bloated bureaucracies become more obvious, the wisdom of a free market for solid waste management will become more apparent.

State of Maryland
Governor's Advisory Council on Recycling

Agenda - August 5, 1991

The meeting will be held at The Maryland Municipal League, 1212 West Street, Annapolis

- 9:00 a.m. Convene, Self Introductions and Adoption of Minutes
- 9:10 a.m. Staff's and Chairman's Reports
- 9:30 a.m. Continued Discussion of Raising Revenues for Recycling and their Disposition
- This meeting will be devoted to completing our work on this topic. The discussion will center around the enclosed draft interim report. Please be prepared to finish this discussion so that a final version can be sent to the Governor.
- 11:00 a.m. Discussion of Means of Reducing the Amount of Municipal Solid Waste
- At the July meeting, those present were challenged to generate ways by which the amount of municipal solid waste can be reduced, other than the means we have covered so far and other than by recycling. We will not discuss methods that will interfere with interstate commerce. Everyone is so challenged!
- 11:30 a.m. Old and New Business
- 12:00 Adjourn

NOTE: Based on discussion at the July meeting, we will invite Mr. Stanley W. Tucker, Executive Director of the Maryland Small Business Development Financing Authority, to discuss small business incubators. If Mr. Tucker is able to attend, the agenda will be altered to provide time for his presentation and our discussion.

REMINDER: The September meeting is postponed (tentatively) to *Thursday, September 12*. It will be an all day meeting, with a portion devoted to planning for 1992.

Governor's Advisory Council on Recycling

August 5, 1991

MINUTES



Members in attendance:

Dr. Harvey Alter, CHAIRMAN
The Honorable Thomas Duncan, Maryland Association of Counties
Mr. Michael Gagliardo, Northeast Maryland Waste Disposal Authority
Mr. Lawrence Hayward, packaging industry
Mr. Paul Hollinger, packaging industry
Mr. Marcus Marx, solid waste industry (representing Mr. George Hudnet)
Dr. Michael Pelczar, Jr., environmental community
Mr. James Pittman, Maryland Department of the Environment (MDE)
Mr. Cliff Willey, Maryland Environmental Service
(representing Mr. George Perdikakis)
The Honorable Gerald Winegrad, Maryland State Senate

Members absent:

Mr. James F. Katcef, food and beverage industry
Dr. Dan K. Morhaim, general public
The Honorable Joan B. Pitkin
Mr. Thomas Redmond, Sr., recycling industry
Mr. Barry F. Scher, Maryland Food Dealers Association

Others in attendance:

Mr. William Burroughs, PolySource
Mr. Kristen Hughes, Maryland Association of Counties
Mr. Richard Keller, Northeast Maryland Waste Disposal Authority
Ms. Virginia Lipscomb, MDE
Ms. Lori Scozzafava, MDE

The monthly meeting of the Governor's Advisory Council on Recycling was held on August 5, 1991 at the Maryland Municipal League with Dr. Harvey Alter convening the meeting at 9:08 a.m. Dr. Alter welcomed new members, Mr. Thomas Duncan and Mr. James Pittman, to the Council. Dr. Alter added that Ms. Regina McNeill has resigned as Councilwoman for Berwyn Heights to become a Commissioner for the Maryland National Capital Park and Planning Commission and will no longer be a member of this Council.

Dr. Alter explained that the delay in officially appointing new Council members was due to the large number of appointments currently being considered by the Governor's Office and that new members would be notified in due course.

MD Y3, Re 3112 / 114 / Aug 5, 1991

The following amendments were requested to previous minutes. The "Others in attendance" listing for the July 1, 1991 meeting is amended to include Mr. Kristen Hughes. The May minutes are amended on page three in reference to packaging to reflect the fact that the article in the February 1988 issue of the Journal of Packaging Technology, quoted by Mr. Paul Hollinger, suggests that the percentage of plastics that will be recycled may not increase due to the value of the material.

Staff Report

Ms. Lori Scozzafava confirmed that the next meeting will be from 9:00 a.m. to 3:00 p.m. on September 12, 1991 at the Department of Natural Resources' Wye Island facility. The morning will be a regular meeting with the afternoon being used to address all the issues that have been raised and tabled for future discussion and to set goals for the coming year. Everyone was urged to attend and dress casually. Food for lunch will be provided, courtesy of Mr. Barry Scher. Members were encouraged to contribute additional items by contacting Ms. Scozzafava.

Ms. Scozzafava reported that all of the County Recycling Plans are officially in to MDE. The final two are in the review process. She added that new Solid Waste Management Plans (SWMP) have been required of the counties by MDE to replace the hodgepodge of amendments which have been submitted for several years to update existing plans. The new SWMP will also include the impact of recycling on the solid waste management system. In regards to the generic ad campaign, she state that the final products have been received from the EPA consultant but that some changes are needed before they can be distributed. In response to Senator Winegrad's inquiry, Ms. Scozzafava reported that MDE is developing a unifying theme "All STAR" or All State Agencies Recycle to get the State agency recycling program back on track. Contract problems encountered by DGS have been resolved. DGS is signing a contract with Athelas to act as a statewide contractor while still allowing each agency to obtain its own contractor if it is more economical or efficient.

Dr. Alter commented that a new group concerned with recycling had been formed by the Governor. Ms. Scozzafava reported that this group is chaired by Mr. Gary Thorpe, the Governor's Energy Conservation and Recycling Czar. Mr. Thorpe is the Executive Director of the Maryland Energy Administration. Ms. Scozzafava attends the meetings of this group and will be happy to report back to the Council. The current meetings are focusing on revitalizing the State agency recycling program and development of a statewide recycling newsletter. The newsletter would be distributed to county governments and others, as well as State agencies.

Advisory Council Interim Report

The July 8, 1991 draft of the Interim Report was discussed. Explanation of the proposed Senate Bill 680 given by Senator Winegrad (who was not able to attend the last two meetings) demonstrated a misunderstanding of the Bill which will be corrected in the next draft of the Interim Report. Distribution of monies in the recycling fund was meant to provide the Department the greatest possible flexibility to attract recycling businesses as appropriate or fund county programs where help is most needed. Appendix I and "Current Means to Stimulate Recycling" on page four will be revised to reflect new information supplied at the meeting by Mr. Cliff Willey. Before submitting the Interim Report, Senator Winegrad suggested that the Council hear from the National Council of State Legislators (NCSL). He will arrange for a representative of NCSL to attend the October meeting to report on what financing mechanisms are being used by other State governments, how they have been implemented, and how they are working out. He will also try to get someone from Pennsylvania to come to the October meeting to report on how the tonnage fee is working there. Dr. Alter added that he could provide summaries as well of what is going on in other states though all but New Jersey have limited experience. He agreed that it would be worthwhile to have a live report.

Senator Winegrad reported that another method used by a number of states to stimulate recycling is to ban materials from the landfill unless the State certifies that markets do not exist. Ms. Scozzafava noted that a review of the County recycling plans indicates that banning yard waste from landfills has been proposed by several counties.

On page four, paragraph two, the last line will be deleted per discussion. It was stated that small tonnage fees would be more likely to drive the waste into the woods than into another state..

There was lengthy discussion of whether to separate the issue of "stimulating at the margin" from the "waste-end fee" concept since agreement could not be reached on the fee issue. It was proposed to go ahead with the first issue and look at the waste-end fee issue again after getting input at the October meeting. At the September meeting, the group will hear from MDE, MES, MACO, and the Northeast Authority about where they perceive the problems are that could most effectively be helped by State funding. Mr. Kristen Hughes felt that this would be important so that the Council's report could clearly identify the problems, give general solutions, and demonstrate how they would solve the problems raised. Mr. Gagliardo suggested that the Council look at the money still available in existing funds and determine how this system could be restructured to be more responsive to recycling needs. He recommended sending the report to the Governor piecemeal so that he could start to develop his legislative package. Dr. Alter responded that he will make changes to the draft Interim Report and mail it out. He requested a quick review time and submittal of comments to him as soon as possible.

Task Group Reports

Procurement

Mr. Michael Gagliardo distributed a draft report for review. He requested that comments be directed to him so that he could have a revised draft for the September meeting. Mr. Richard Keller answered questions on State procurement of recyclables. He stated that draft regulations are in the Procurement Plan prepared by the Department of General Services and should be finalized by January 1, 1992.

Mr. Keller reported that the cost of recycled paper depends on a number of factors - where you buy, how much you buy, the size of the mill. Most producers of recycled paper are small mills which do not have the economies of scale that regular large paper mills do. There is some question on the issue of tax incentives being given to virgin materials. The residue in large mills can be used as fuel while it may have to be disposed as hazardous waste at small mills. The cost of processing once you have the pulp is about the same. Mr. Paul Hollinger asserted that where possible, the State should purchase products packaged in recycled material. This should be guidance rather than mandate and should be reasonable, possibly on high volume items. He offered as an unrealistic, negative example, a bid requirement that the product would not use any polystyrene packaging.

Mr. Lawrence Hayward had a question about recycled content in food-contact paper. The survey form used to generate the report is based on the U.S. Conference of Mayors survey and includes only those items included on that survey form, which did not include food-contact paper. Dr. Alter responded that anything coming into contact with food is considered a food additive by the FDA. Its use must be approved by the FDA and the applicant must prove the consistent nature of the product which is difficult due to the lack of homogeneity of post-consumer recycled content paper.

Waste Reduction

A user fee at the curb was discussed as a waste reduction incentive. Some communities have used a volume-based waste disposal fee, i.e., per bag or per can and others are now trying a weight-based fee where each customer's garbage is weighed and billed separately on a per pound collected basis. Ms. Scozzafava interjected that there is a tremendous variety of approaches used by the counties to charge for waste disposal. Senator Winegrad added that it would be very difficult for the State to mandate how the counties paid for waste disposal. Mr. Hollinger suggested that to get the biggest impact from waste reduction you should look to the largest component of the waste stream - paper. The status of cellulose insulation was reported. It goes up and down with the housing market. The existing Maryland company, Suburban Insulation, is expanding. A new producer, Louisiana Pacific, is planning on a site in Baltimore County.

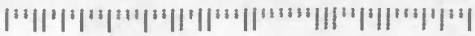
Mr. Hollinger also suggested that a tax on shopping bags and grocery bags might encourage the use of cloth or net bags as are common in Europe.

Mr. Hollinger distributed an article on packaging and the law from the Journal of Packaging Technology, March/April, 1991, and an article on packaging reduction from Converting Magazine, July, 1991.

Senator Winegrad commented that we are generating an unacceptably high amount of waste per person. Dr. Alter questioned the accuracy of world-wide figures. He has assigned a summer intern to delve into the disparities in reporting waste generation.

Mr. William Burroughs distributed some recommendations on how the Council should proceed in response to a previous request by Dr. Alter.

***Meeting was adjourned at 11:55 a.m. The next meeting is scheduled for September 12, 1991 at the Wye Island DRN facility from 9:00 a.m. to 3:00 p.m. Dress casually and be prepared to wind up this year's projects and set next year's goals.



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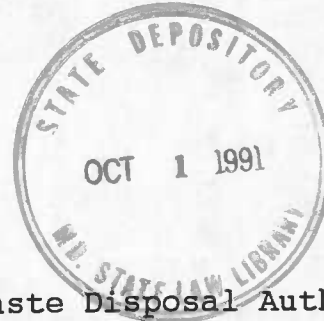
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U.S. POSTAGE

Governor's Advisory Council on Recycling

September 12, 1991



Members in Attendance:

Dr. Harvey Alter, CHAIRMAN
Mr. George Hudnet, Solid Waste Industry
Mr. Michael Gagliardo, Northeast Maryland Waste Disposal Auth.
Mr. Paul Hollinger, Packaging Industry
Mr. James Pittman, III, Maryland Department of the Environment
Dr. Dan Morhaim, General Public
Mr. Thomas Duncan, MACO
Mr. Lawrence Hayward, Amoco Corporation

Members not in Attendance:

Mr. James Katcef, Food & Beverage Industry
Ms. Regina J. McNeill, Maryland Municipal League
Mr. Lenny Minutillo, Food & Beverage Industry
Mr. Michael Pelczar, Environmental Community
Mr. George Perdikakis, Maryland Environmental Service
The Honorable Joan B. Pitkin
Mr. Thomas Redmond, Recycling Industry
Mr. Barry F. Scher, Maryland Food Dealers Assoc.
The Honorable Gerald W. Winegard, Maryland State Senate

Others in Attendance:

Mr. Gary Thorpe, Maryland Energy Administration
Ms. Beryl Friel, Mid-Shore Regional Recycling Project
Mr. Michael Taylor, Maryland Environmental Service
Mr. Robert Perciasepe, Secretary, Department of the Environment
Ms. Lori Scozzafava, Maryland Department of the Environment
Mr. Glenn Dodson, Maryland Dept. of the Environment
Mr. William Burroughs, PolySource

The monthly meeting of the Governor's Advisory Council on Recycling was held on September 12, 1991 at the DNR facility on Wye Island, with Dr. Harvey Alter convening the meeting at 9:30 A.M. This meeting was an all day meeting with a portion of the proceedings dedicated to planning for the upcoming year. The minutes from the August meeting were adopted.

Staff Report and Chairman's Report

Ms. Lori Scozzafava presented an update on various projects currently being pursued by the Office of Waste Minimization and Recycling.

A preliminary draft of the tire regulations are complete and are going through internal review. It will be made available to all members at the appropriate time. These regulations will establish a framework for the tire recycling program as well as licensing/approval procedures, storage specifications and requirements. Ms. Scozzafava also reported on MDE's report to the Environmental Matters Committee. This presentation included a status report on recycling in Maryland and recommendations for the future. In essence the presentation stated that the county programs are doing "some" good work but continued advancement and fine tuning are needed. Financial problems still exist in many counties and is a major topic of concern.

Mr. James Pittman stated that the new unofficial figures for solid waste disposed in the state will be approximately 5 million tons for 1991. He added that some counties do not differentiate between MSW and rubble.

Ms. Scozzafava stated that it is important for the Office of Waste Minimization and Recycling (OWMR) to place a high priority on recycling regulations development. Dr. Alter added that the Council is to advise the Governor on the development of regulations and therefore it may be appropriate for the Council to develop an outline for specific recommendations.

Ms. Scozzafava announced that there is a vacant position at OWMR and that questions should be directed to her. It was also announced that Chaz Miller is the new Director of NSWMA.

Mr. Pittman presented information about Freestate Recycling in Frederick Co. At a public meeting the County Commissioners agreed to reconsider the inclusion of this site into the Solid Waste Plan. If this site is not included then permits cannot be granted.

Dr. Alter announced that filling the vacancies for Lenny Minutillo and Regina McNeill is being pursued. Secretary Perciasepe and Gerald Thorpe arrived and participated in the morning session.

Dr. Alter read aloud a letter he received from the Governor which commented on the various reports and recommendations submitted by the Council. The letter was very positive and a copy is included with these minutes. In response to this letter, Dr. Alter will draft a report to the General Assembly. Secretary Perciasepe offered to have the subsequent printing done through MDE.

Dr. Alter presented a list of items that he feels "fall through the cracks" in the Governor's charge to the Council. This list of recommended topics for the Governor's consideration and/or support include: (1) DOT should place used tire requirements in asphalt specifications; (2) look to develop a TDF plant in Maryland to produce energy, much like California; (3) leave all grass clippings on public right-of-ways; (4) the use of tree clippings for mulch; (5) school recycling programs; (6) encourage rapid transit recycling; (8) recommend the use of leaf compost as landfill cover; (9) recommend sending white goods to scrap processors. A draft will be developed and forwarded to the members for review. Remember this will simply be a list of topics that the Governor may want appropriate Departments or agencies to investigate further.

Dr. Alter commented that he believes that price preferences only encourage people to set higher prices. He suggested that a sliding scale which would reduce over time might be appropriate. Councilman Thomas Duncan stated that currently there is a 30% difference in price for certain products.

Mr. Hollinger questioned whether the Governor understood that recycling costs money and also why is recycling promoted over burning when the economics are better for burning. Secretary Perciasepe stated that the Governor understands completely that recycling has a cost. He also stated that the Governor is also very aware that economics is not the only driving force to recycling. There is the whole concept of global resource preservation and global responsibility. This concept of the government either doing or promoting something that is not driven by economics is evident in many different instances (eg. emission control devices on cars would not be standard if left up to economic forces).

Dr. Alter stated that Senator Winegrad is trying to form a task force to suggest what might be included in future legislation. This group would include George Hudnet, Dan Morhaim, Joan Pitkin, Bill Burroughs, and Dr. Alter.

Secretary Perciasepe stated that he emphasized several items in his presentation to the Environmental Matters Committee: MDE is in favor of making solid waste operate much like water and sewer with the use of user fees and/or tipping fees; MDE supports the legislature staying with the current recycling percentages until 1994 and then at that time possibly raise the percentage requirement; MDE supports content percentages in certain products. Mr. Burroughs stated his full agreement with these positions.

Interim Report on Stimulating at the Margin

Comments in response to the report included:

- 1) A statement that Fiscal Services may recommend a waste end tax to raise revenues.
- 2) Written changes from George Perdikakis will be incorporated into the report. Mr. Michael Taylor explained that there is presently available \$4.5 million for reimbursable grants for engineering and design work (0% interest) plus \$1 million for recycling project equipment and construction. This report will be forwarded to the Governor with changes.

Waste Reduction

A lengthy discussion ensued and it was recommend that Barry Scher be consulted about the use of reused packaging. Mr. Paul Hollinger suggested that the Council include institutional and industrial packaging when recommending the reduction of waste in packaging. He believes that there is great room for development in this sector. He also recommends that reusable packaging should be recommended where possible.

Future Meetings

Field trips to Lever Brothers to see their recycled plastics processing, and to the Montgomery County MRF will be scheduled for the November and December meetings. These will be coordinated between Mike Taylor and Paul Hollinger. Dr. Alter and staff should be contacted so that the other members can be notified.

Public Information and Perception

There was a discussion of the perception that people have when it comes to the costs and benefits of recycling. It was strongly argued both that people recycle because they think someone is making money, and conversely that people recycle because they are aware that they are doing something of benefit to society, not necessarily a monetary benefit. Dr. Morhaim agrees with Secretary Perciasepe's concept that there are benefits to recycling that are not monetary and that there are also cost to "not recycling" that must be considered when evaluating the costs and benefits to recycling. Mr. Gagliardo suggested that a major cost of not recycling is the political costs of constantly siting landfills.

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Miscellaneous

It was strongly suggested that the counties use a standardized accounting system when they are figuring costs associated with recycling.

It was decided not to address the ONP issue since the Newsprint Recycling Board will address issues concerning ONP.

It was suggested that the Council develop a model for phasing in user fees. MDE will develop some background information for the November meeting.

It was suggested that the Council invite Mark Wasserman to a future meeting.

The meeting was adjourned at 3:30 p.m. The next meeting is scheduled for October 7, 1991 at the Maryland Municipal League in Annapolis, from 9:00 a.m. until 12:30 p.m.

Governor's Advisory Council on Recycling

April 6, 1992

Members in Attendance:

Dr. Harvey Alter, CHAIRMAN
Mr. Thomas Duncan, MACO
Mr. Michael Gagliardo, Northeast Maryland Waste Disposal Auth.
Mr. George Hudnet, Solid Waste Industry
Mr. Paul Hollinger, Packaging Industry
Dr. Dan Morhaim, General Public
Ms. Lori Scozzafava, Maryland Department of the Environment
(representing Mr. James Pittman)
Mr. Michael Taylor, Maryland Environmental Service
(representing Mr. George Perdikakis)

Members not in Attendance:

Mr. Lawrence Hayward, Packaging Industry
Mr. James Katcef, Food & Beverage Industry
Mr. Michael Pelczar, Environmental Community
The Honorable Joan B. Pitkin, Maryland House of Delegates
Mr. Thomas Redmond, Recycling Industry
Mr. Barry Scher, Food Dealers Association
The Honorable Gerald W. Winegrad, Maryland State Senate

Others in Attendance:

Mr. Marcus Marx, Solid Waste Industry
Mr. Bill Burroughs

The regularly scheduled meeting of the Governor's Advisory Council on Recycling was held on April 6, 1992 at the Maryland Municipal League with Dr. Harvey Alter convening the meeting.

The minutes from the March 2, 1992 meeting were reviewed. Dr. Alter suggested that Lenny Minutillo and Regina McNeil be removed from Members not in Attendance, because they both have resigned. Dr. Alter also stated that the Governor will be appointing the new members to fill the vacancies on the Board. Dr. Alter will coordinate with the Governor's Office to contact the individuals so that they may start attending the meetings before they officially receive their appointments. Mr. Hollinger requested that the minutes be changed so that remarks concerning the burning of tires state that he is not an advocate of burning tires in kilns, but he is an advocate of exploring the issue. The minutes were adopted with these changes.



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Dr. Alter suggested that the EPA has a report out about markets for tires and along with the ESSROC test information a task group should review this information and report to the Council. Mr. Hollinger and Dr. Morhaim volunteered to take part.

Dr. Alter provided staff with three articles for distribution: Reaching for High Recycling Percentages: What it Requires, Solid Waste and Power; Financing Recycling Programs, Waste Age; and MRF Growth Defies Economic Conditions, Waste Age. These publications will be forwarded to the members by Staff. Dr. Morhaim also provided the members with a handout entitled, Container & Packaging Recycling, Container Recycling Institute.

Dr. Alter put a discussion of public education and information on the May agenda.

Staff Report

MDE has completed the preliminary draft of the Natural Wood Waste Regulations. Copies will be provided to the members.

Ms. Scozzafava stated that the public hearing for the Tire Regulations was held and the comments were minor, which speaks to the fact that major issues were discussed with the industry through the Scrap Tire Task Force. Comments that were received will be addressed and a new draft will be developed.

The Newsprint Recycling Board has completed its recommendations for a newsprint tonnage reporting system. MDE has accepted them, and publishers will now have to report the recycled content contained in the papers they distribute in Maryland on these forms. The first reports from the publishers are due at the end of April.

A draft County tonnage reporting system has been developed. Ms. Scozzafava stated that it is understood that many times it is a difficult situation for counties when they are compared to other state's jurisdictions who's regulations allow additional materials in their calculation of recycling percentages. For this reason, the system will allow reporting of materials that will not go towards their goal, but will show their effort and progress.

The Maryland Recycling Conference has been set for May 13 & 14 at Maryland Hall in Annapolis. Dr. Alter suggested that Ernie Honig-Kent, from the Chamber of Commerce, should be contacted as a contributing sponsor.

As a side note, it was announced that Environmental Concepts is bankrupt.

Economics and Financing Report

Mr. Gagliardo distributed revised drafts of the report. He walked through the spreadsheets step by step. These sheets can be used by any jurisdiction for planning purposes. Variables will be set by the county (population, rate of population growth, etc.), certain assumptions will be input and then the computer will calculate the outcome. Ms. Scozzafava requested that a summary of recycling costs versus waste costs be included. This topic will be revisited at the May meeting.

Regionalization

The members were asked to prepare ideas for ways in which the Council can foster County regionalization where it makes sense. Ms. Scozzafava pointed out that one of the ways in which the State has assisted counties with regionalization is through commissioning studies designed to illustrate potential options.

There was a discussion concerning whether economic incentives could make regionalization happen. Mr. Duncan stated that there must be a commitment by the governing body and they must illustrate the economics of it to their constituents. The politicians then must act and stand behind their actions. Mr. Gagliardo stated that there are essentially two ways in which the State can assist in promoting regionalization; 1) money and expertise, and 2) a mechanism or intermediary (MES or the Authority) that will allow it to happen.

Dr. Alter suggested expanding the role of the Authority or MES to include waste management of the entire state. There was a discussion that statewide management of solid waste is being done in Delaware and works because of its size and the person running the program. It was pointed out that this has not worked in Wisconsin, Rhode Island or Connecticut. Mr. Duncan emphasized that regionalization must start at the grass roots level and that the communities must feel that it is their project.

Dr. Alter stated that the Counties in many circumstances are in need of solid waste consulting services. He suggested that MES could provide this service. He also added that MDE might not be the agency that should perform this service because MDE is the permitting authority and there may be a conflict of interest which may cause confusion. Project development and operation should not be performed by the same agency doing the permitting. Ms. Scozzafava pointed out that, at this time, MDE does not permit recycling facilities.

Mr. Taylor interjected that presently there is nothing preventing MES from performing any environmental service for a jurisdiction except the ability of that jurisdiction to finance the project and the jurisdictions request for the project.

Dr. Alter asked if giving priority to regional projects would foster regionalization. Ms. Scozzafava stated that MDE is implementing this rationale when making its recommendations for grant funding this year. She added that the way to prevent phoney regionalization projects is by having all the paper work and budgets up front, and then monitoring the utilization of the funds. Mr. Taylor stated that, in some circumstances, this would hinder projects that are inherently not regional, due to transportation costs, etc. He stated that this requirement may cause jurisdictions not to use the Authority or MES because they know that their first hurdle will be to re-examine regionalization.

The Council agreed that to truly regionalize, the jurisdictional boundaries need to be erased and the landfill, rubblefill, or recycling facility should be placed in the best available location. Dr. Alter requested that a report on regionalization be developed. The report should have two parts: (1) Background, Mike Taylor; and (2) Policies, Pros and Cons, Dr. Alter.

The Council will look at institutionalizing public education activities. The State Government has many agencies involved in recycling, and there should be coordination of these activities.

Old or New Business

In response to an earlier proposal by the Recycled Product Task Force for a "Year of Recycling," Ms. Scozzafava has proposed to the Maryland Recyclers Coalition that 1993 be the designated year of recycling and that special events be scheduled (meet your representative, tours of facilities, etc.). The year 1993 is significant in that this is the year in which the Counties must meet their recycling goals (January 1, 1994).

The meeting was adjourned at 12:00 p.m. The next meeting is scheduled for May 4, 1992 at the Maryland Municipal League, from 9:00 a.m. to 12:30 p.m.

Governor's Advisory Council on Recycling

May 4, 1992

Members in Attendance:

Dr. Harvey Alter, CHAIRMAN
Mr. Thomas Duncan, MACO
Mr. Michael Gagliardo, Northeast Maryland Waste Disposal Auth.
Mr. Michael Pelczar, Environmental Community
Mr. Paul Hollinger, Packaging Industry
Mr. Barry Scher, Food Dealers Association
Mr. James Pittman, Maryland Department of the Environment
Ms. Pat Tantom, Maryland Environmental Service
(representing Mr. George Perdikakis)
The Honorable Gerald W. Winegrad, Maryland State Senate

Members not in Attendance:

Mr. Lawrence Hayward, Packaging Industry
Mr. James Katcef, Food & Beverage Industry
Mr. George Hudnet, Solid Waste Industry
The Honorable Joan B. Pitkin, Maryland House of Delegates
Dr. Dan Morhaim, General Public
Mr. Thomas Redmond, Recycling Industry

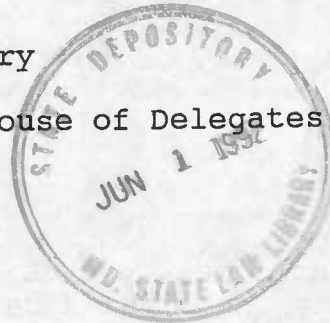
Others in Attendance:

Mr. Glenn Dodson, MDE
Mr. Bill Burroughs
Dr. Massoud Ahmadi, Department of Economic and Employment Development
Mr. Patrick Lister, Maryland Forum

The regularly scheduled meeting of the Governor's Advisory Council on Recycling was held on May 4, 1992, at the Maryland Municipal League, with Dr. Harvey Alter convening the meeting.

The minutes from the April 6, 1992 meeting were reviewed. Dr. Alter stated that it should be understood that his suggestions stated on page two of the May minutes were not intended to imply his support or non-support of these topics but simply to stimulate discussion. The minutes were adopted with this change.

Dr. Alter distributed the Governor's letter commenting on the 1991 Annual Report. Dr. Alter pointed out the response to the Council's comments on tires and suggested that this information and other recycling information be channeled to the Council through other means than through letters from the Governor. Dr. Alter suggested a central location where all solid waste/recycling information should pass through and be stored, he suggested the University of Maryland. Dr. Pelczar said that with the budget situation, the Universities ability to extend its duties may be in question. Dr. Alter stated that he was happy to announce that the EPA is finally talking about establishing an extension service.



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Dr. Alter will respond to the Governor's letter with comments pointing out the need for a central location for information.

It was announced that the Maryland Recyclers Conference would be held on May 13 and 14 at Maryland Hall, Annapolis MD.

Senator Winegrad stated that the ESSROC test burn in Frederick has revealed that lower emissions were evident across the board except for CO2. He added that the testing covered the full range of emissions. He stated that this could "potentially" handle all the tires produced yearly in MD.

1992 Maryland General Assembly

Senator Winegrad presented a brief overview of the 1992 Legislative Session with regard to Bills on which the Council made recommendations to the Governor.

HB 1346 Reduction of Toxics in Packaging: Passed with very little dissent or changes. One change was made to take care of a major specialty steel company in MD.

Plastic Content Legislation: Legislation was passed with considerable changes in the Senate and then was defeated in the House.

Comprehensive Recycling Fee, Bans on White Goods, Lead Acid Batteries, and Yard Waste: Amended in the Senate to remove the fee because of the array of taxes being proposed throughout the Legislature this year. The bans were left in the bill but this met its death in the Environmental Matters Committee.

HB 1088 Solid Waste Management - Composting: Passed. Requires standards and grading of composted material. It also prohibits a landfill operator from accepting any separated yard waste unless he composts it.

SB 37 Mercury Oxide Batteries Recycling and Disposal: Passed. The bill requires the industry to set up the collection system. The industry is behind the recycling of these batteries in part because they do not want them banned, which several jurisdictions in the country have done. They have greatly reduced many of the chemicals and are essentially saying that they will continue to reduce potentially harmful properties of the batteries and they will aggressively recycle.

Mr. Barry Scher stated that the FERST Company will be working with Giant to do a project that will compost waste from specific locations. It was stated that historically mixed waste composting has been an economic "bust". He added that separated waste composting has shown to be successful in many instances.

There was a discussion of NIMBYism and some of the situations were it recently occurred. Senator Winegrad stated that there were more Bills related to NIMBYism rather than environmental merits than he could ever remember. One Bill that was passed will set up a task force to discuss the whole issue of hazardous waste disposal in MD.

On a side note, Mr. Hollinger stated that he feels that the Council should be more in the loop when information about relevant issues in recycling is distributed, specifically information on the ESSROC test burn information. Dr. Alter agreed and he stated as he did before Mr. Hollinger arrived that he would point this situation out in his reply to the Governor.

Department of Economic and Employment Development

Dr. Massoud Ahmadi gave an overview of Deed's recycling activities. He stated that Secretary Wasserman has been involved with the development of two "cluster teams", Life Sciences and Information Technologies. The goal of the teams is to gather information, evaluate the information and determine the economic advantages of the service and then to examine the ways in which they can assist these types of companies. He added that life sciences and information technologies are considered to be the frontiers of economic development in the state.

Dr. Ahmadi stated that currently DEED is involved with only three projects: \$4.1 million loan, Maryland Paper Limited Partnership, Washington County; \$35 million loan, FERST; \$1.5 million loan guarantee, Mid Atlantic Recycling Corporation. DEED is capable of granting loans or guarantees. They are working on a data management program. They will survey the industry to determine the size of the entire market. This data base will be updated monthly. Dr. Pelczar suggested that there is a need for a support mechanism for firms that are doing environmental work. The profitability of a firm wishing to come into Maryland should not be measured solely by its economic value added but also by the value added to the environment of Maryland.

Dr. Ahmadi stated that there is a need to make the tax laws as beneficial to biotech firms as to manufacturing firms.

Mr. Jim Pittman stated that MDE has coordinated with DEED on a number of projects and continues to coordinate with them. In many instances MDE has provided a "one stop shopping" format so that firms can simultaneously apply for several permits. MDE does this in house.

Mr. Bill Burroughs added that many times recycling businesses need technical assistance. They are small and in many cases don't have a recycling background.

Senator Winegrad suggested that there be an interagency work group comprised of DEED, MDE, MES, and NWMDA. He also suggested that DEED should take a more proactive strategy to get environmental businesses into the state instead of waiting for them to contact DEED.

Next month "Keep America Beautiful" will make a presentation. Time will also be set aside for a tire presentation by the sub-group.

The meeting was adjourned at 12:00 p.m. The next meeting is scheduled for June 1, 1992, at the Maryland Municipal League, from 9:00 a.m. to 12:30 p.m.

Mr. Michael S. Miller
Court Of Appeals Building
361 Rowe Boulevard
Annapolis MD 21401



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Maryland Dept. of the Environment
2500 Broening Highway
Baltimore MD 21224



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METER 28552

Governor's Advisory Council on Recycling

August 3, 1992



Members in Attendance:

Dr. Harvey Alter, CHAIRMAN
Mr. Michael Gagliardo, Northeast Maryland Waste Disposal Authority
Mr. Paul Hollinger, Packaging Industry
Mr. Michael Pelczar, Environmental Community
Ms. Lori Scozzafava, Maryland Department of the Environment (MDE)
(representing James Pittman)
Mr. Michael Taylor, Maryland Environmental Service
(representing Mr. George Perdikakis)
Dr. Dan Morhaim, General Public
Mr. Thomas Redmond, Recycling Industry
The Honorable Gerald W. Winegrad, Maryland State Senate
Mr. Scott J. Horne, Recycling Industry
Mr. Marcus S. Marx, Wheelabrator Inc.
(representing Mr. George Hudnet)

Members not in Attendance:

Mr. Thomas Duncan, MACO
Mr. Lawrence Hayward, Packaging Industry
Mr. James Katcef, Food & Beverage Industry
The Honorable Joan B. Pitkin, Maryland House of Delegates
Mr. Barry Scher, Food Dealers Association

Others in Attendance:

Mr. Glenn M. Dodson, GACR Staff, MDE
Mr. William Burroughs, Burroughs Consulting

The regularly scheduled meeting of the Governor's Advisory Council on Recycling was held on August 3, 1992, at the Maryland Municipal League, with Dr. Harvey Alter convening the meeting. Mr. Thomas Redmond and Mr. William Burroughs were inadvertently omitted from the July attendance list. The September meeting at Wye Island is scheduled for Wednesday, September 2, 1992, not September 7, 1992 as was stated in the July minutes. The minutes were adopted with changes.

MDE and Chairman's Report

Ms. Scozzafava reported that she has received assurances from the EPA that they will be providing OWMR with computer assistance as well as some general data entry help for the tonnage reporting done by the County.

She announced that the draft application forms for tire facilities has been completed. OWMR is in the process of amending the regulations to provide approval of out of state facilities through MES's inclusion of them into the Scrap Tire Recycling System. The amendment also reiterated the State Fire Marshall's ability to inspect facilities and enforce proper tire storage.

OWMR is focusing on the review of County Solid Waste Plans to assure that there is a complete incorporation of recycling into the plans.

OWMR is developing a recycling training course along with The National and Maryland Soft drink Association. The program will be held sometime in late fall and will be offered initially to County and Municipal Coordinators. If spaces are available then it will be open to other interested parties.

Dr. Alter informed the members about an international agreement (Bosal Convention) concerning the transportation of waste. It essentially states that an OECD member country which ratifies the Bosal Convention can break solid waste agreements with non-ratifying countries, without fear of retaliation. There was not general agreement on this issue. It was recommended that the members who wish to support this to write their Congressmen.

Discussion of Keep America Beautiful (KAB)

In response to a request from Delegate Pitkin, Dr. Alter reported on the History of KAB in Maryland. He stated that there was a brief attempt to affiliate with KAB in 1976. This subsequently lost support and this was the last time that he is aware of that a real effort to affiliate was made, until recently with Montgomery County. There was a discussion about whether KAB has enough of a focus on recycling, as opposed to its traditional litter control role, to be recommended as a facilitator of an institutionalized recycling education program. There was debate on both sides of this issue. There was support for a State funded program. It was pointed out that Pennsylvania has \$24 million in funding for its recycling program and that Maryland is probably the least funded mandatory program in the nation.

After much discussion members subsequently agreed that a recommendation should be written which simply lists various methods for institutionalizing recycling. These should include, but not be limited to, a State funded program and KAB.

Tire Workgroup

Mr. Hollinger announced that the Tire Task Force will be visiting the ESSROC facility in Frederick, MD on August 14, 1992. Anyone wishing to attend should contact him at (301) 484-4888.

The Task Force will be developing a report subsequent to the tour and all input is welcomed.

Regionalization

Mr. Taylor distributed a draft report on regionalization to the members. The report details the common themes and essential components of a regional program. The Councils recommendations, however, are not included. All members are asked to comment by contacting Mr. Taylor at (301) 974-7254.

There was a suggestion to put out a bid for a third party to market

issues to consider when using a broker, (1) Counties and municipalities will lose the consistent market that they so often seek, (2) Brokers, by continually shopping for the best price will usually maximize return, but there is more risk. He added that though many of the materials are not traditional the process is still the same and government agencies should not reinvent the wheel.

Economic Report

It was stated that the report is not to determine whether to recycle or not but rather to provide a basis for determining how to most economically recycle the greatest amount possible. Dr. Alter stated that people should know the cost of any public sector function. Dr. Pelczar added that the benefits of improving the environment "must" be considered when determining costs and benefits.

Ms. Scozzafava stated that the tone of the report was somewhat negative. The report pointed out many times that recycling costs money but did not provide a balance by also indicating that solid waste has very high collection and disposal costs, both economically and environmentally.

Dr. Morhaim agreed that it is very important to consider environmental as well as economic costs. When you compare only the economics of recycling you give a distorted description of its benefits.

Senator Winegrad stated that he wants a statement in the report that says recycling is in fact cheaper than incineration for the first 20% recycled and possibly as high as 30% recycled (Montgomery County Report).

There was a general feeling that the draft must be changed to reflect recycling's positive impact on the environment. Members are asked to contact Mr. Gagliardo with changes.

Miscellaneous

Final Report Volunteers:

Dr. Morhaim - Chapter (6)
Mr. Gagliardo and Dr. Pelczar - Chapter (11)
Ms. Scozzafava - Section on Rules and Regulations

Dr. Alter will attempt to provide OWMR with the master draft of the report by August 17, 1992 so that it may be copied and forwarded to the members.

*** The next Meeting is scheduled for September 2, 1992 at the DNR Wye Island Facility from 9:00 a.m. to 3:00 p.m. Dress casually and be prepared to wind up all remaining projects.

Governor's Advisory Council on Recycling

September 2, 1992

Members in Attendance:

Dr. Harvey Alter, CHAIRMAN
Mr. Marcus Marx, Solid Waste Industry (representing Mr. George Hudnet)
The Honorable Joan B. Pitkin, Maryland House of Delegates
Mr. Michael Gagliardo, Northeast Maryland Waste Disposal Auth.
Mr. James Pittman, III, Maryland Department of the Environment
Mr. Thomas Duncan, Maryland Association of Counties
Mr. Lawrence Hayward, Packaging Industry
Mr. Barry F. Scher, Mid-Atlantic Food Dealers Association
Mr. Michael Taylor, Maryland Environmental Service (representing Mr. George Perdikakis)
The Honorable Gerald W. Winegrad, Maryland State Senate

Members not in Attendance:

Mr. Paul Hollinger, Packaging Industry
Mr. Michael Pelczar, Environmental Community
Mr. James Katcef, Food & Beverage Industry
Mr. Thomas Redmond, Recycling Industry
Dr. Dan Morhaim, General Public

Others in Attendance:

Ms. Lori Scozzafava, Maryland Department of the Environment
Mr. Glenn Dodson, Maryland Dept. of the Environment
Mr. William Burroughs, Burroughs Consulting

The monthly meeting of the Governor's Advisory Council on Recycling was held on September 2, 1992 at the DNR facility on Wye Island, with Dr. Harvey Alter convening the meeting at 9:30 a.m. This all day meeting was entirely dedicated to the development of the Governor's Advisory Council Final Report.

The meeting consisted of a page by page review of the first draft of the report. The second draft will be forwarded to the members prior to the October tour of Lever Brothers Inc. The Chairman will be out of the United States and thus will not be in attendance, however there will be a meeting room reserved to discuss the draft.

The meeting was adjourned at 4:45 p.m. The next meeting is scheduled for October 5, 1992 from 9:00 a.m. until 12:00 p.m. The meeting will primarily consist of a tour of the Lever Brothers Inc. facility in Owings Mills, Maryland. Directions are enclosed.

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Mr. Michael S. Miller
Court Of Appeals Building
361 Rowe Boulevard
Annapolis MD 21401

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Governor's Advisory Council on Recycling

October 5, 1992

Members in Attendance:

Mr. Michael Taylor, Maryland Environmental Service (representing Mr. George Perdikakis)
Mr. Paul Hollinger, Packaging Industry
Dr. Dan Morhaim, General Public

Members not in Attendance:

Dr. Harvey Alter, CHAIRMAN
The Honorable Joan B. Pitkin, Maryland House of Delegates
Mr. Michael Gagliardo, Northeast Maryland Waste Disposal Authority
Mr. James Pittman, III, Maryland Department of the Environment
Mr. Thomas Duncan, Maryland Association of Counties
Mr. George Hudnet, Solid Waste Industry
Mr. Lawrence Hayward, Packaging Industry
Mr. Barry F. Scher, Mid-Atlantic Food Dealers Association
Mr. Michael Pelczar, Environmental Community
Mr. James Katcef, Food & Beverage Industry
Mr. Thomas Redmond, Recycling Industry
The Honorable Gerald W. Winegrad, Maryland State Senate

Others in Attendance:

Mr. Glenn Dodson, Maryland Department of the Environment
Mr. William Burroughs, Burroughs Consulting
Mr. Scott Horne, Recycling Industry

The monthly meeting of the Governor's Advisory Council on Recycling consisted of a tour of Lever Brothers, Inc. The tour convened with presentations from Ms. Jeanne P. Meyer, Manager Environmental Affairs, and Mr. Arnie Brown, Vice President of Packaging, on Lever recycling and general environmental activities. A fact sheet is enclosed as part of the minutes to provide an overview of the presentations.

The tour consisted of a walk through with concise presentations at each department. The attached fact sheet also describes the facility operation.

The second Draft of the Final Report is enclosed. It will be discussed at the November meeting.

The next meeting is scheduled for November 2, 1992 at the Maryland Municipal League, from 9:30 a.m. to Noon. The meeting will be dedicated to discussing the Final Report.



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SHARED WORLD, SHARED RESPONSIBILITY.

NEWS RELEASE

FOR IMMEDIATE RELEASE

CONTACT: Lisa Larragoite
212-420-8100
Tyler Gronbach
202-466-8100

LEVER PACKAGING DEVELOPMENT CENTER

FACT SHEET

As part of Lever Brothers Company's commitment to identifying viable solutions to the solid waste crisis, Lever opened its Packaging Development Center (PDC) on September 18, 1990, in Owings Mills, Maryland. A cornerstone to the company's dedication to environmental action, the PDC is devoted to the creation and development of innovative environmentally-responsible packaging for all Lever products.

In the past two years, the PDC has used advanced technology and worked closely with suppliers to create numerous ways to significantly lessen the impact of its packaging on the solid waste stream. Using the U.S. Environmental Protection Agency's two most preferred methods of solid waste management, source reduction and recycling, as a guideline, Lever's packaging designs now use more recycled content, less packaging and promote re-use more than ever before.

EXAMPLES OF RECENT PACKAGING INITIATIVES:

- **Recycled Plastics Initiative:** In June 1990, Lever Brothers began filling and shipping newly designed 3-layer plastic bottles containing between 25% and 35% post-consumer recycled plastics for several of its leading laundry product brands. By the end of the first phase of the program, Lever exceeded its goal of including recycled plastic in more than 50% of the bottles it sells nationwide.
- **Lightweighting of Liquid Laundry Detergent Bottles:** Lightweighting programs designed by Lever's packaging engineers have significantly reduced the amount of plastic used in Lever's plastic detergent bottles without compromising the strength of the package. As a result, lightweighting saves more than 2.5 million pounds of plastic -- the equivalent of 13 million plastic bottles -- from landfills annually.
- **Reduced Packaging, Recycled Content for Dryer Sheets:** Lever Brothers new Snuggle® Singles™ package is made from 100% recycled paperboard (50% post-consumer) and uses up to 53% less material than prior packaging. The conveniently innovative, one-at-a-time dispenser eliminates the old-fashioned inner roll -- representing the first category innovation in more than 17 years.

--more--



PRODUCT DEVELOPMENT CENTER

Fact Sheet

Page 2

- **Concentrated Laundry Powder Detergents:** In 1990 Lever Brothers introduced WISK® Power Scoop™, a super-concentrated powdered detergent that offers substantial source reduction of packaging materials. The box is made from 100% recycled paper (35% post-consumer) and the scoop is made from 100% post-consumer plastic. By May, 1992, Lever introduced concentrated powder detergents across all brands, including, Ultra Surf®, "all"® and Rinso®.
- **Super-Concentrated Powder Detergents:** In an effort to reduce the amount of virgin plastic used in their detergent packaging, the measuring-scoops packed in all the new concentrated detergents -- Ultra Surf®, "Ultra all"® and Ultra Rinso® -- were designed to contain 100% post-consumer recycled plastic resin.

FACILITY OVERVIEW:

Departments:

- **Packaging Engineering:** Develops machinery technology, analyzes and tests machines utilized in the filling and handling of all packages at Lever Brothers' manufacturing facilities to ensure safe and proper care of all products.
- **Packaging Development:** Develops, tests and implements all packaging component initiatives, using state-of-the-art computer-aided design and simulation laboratories. A primary focus of the division is to develop environmentally-responsible packaging by using less source material and a greater amount of recycled materials.
- **Packaging Projects:** Responsible for project management of a multi-disciplined team accountable for the cost, scope and schedule of all major packaging launches.

FACILITY FEATURES:

- State-of-the-art computer-aided design capabilities.
- The latest simulation testing laboratories, including:
- **CAD Facility:** State-of-the-art CAD/CAM computer systems enable engineers to continually create and test innovative packaging designs.
- **Structure Testing Lab:** Simulates shipping and handling of Lever products from the manufacturing facility to the retail stores.
- **Fiber Testing Lab:** Tests and validates all paper packaging materials to ensure the highest quality packaging.

--more--

PRODUCT DEVELOPMENT CENTER

Fact Sheet

Page 3

- Prototype Testing Lab: Develops, fabricates and tests new packaging initiatives and machinery prototypes, allowing Lever engineers to continually develop and test innovative packaging concepts.
- Environmental Testing Lab: Simulates range of ambient conditions that the packages will be exposed to during the distribution cycle in order to ensure that the product arrives to the consumer in proper condition.
- High Temperature/High Humidity Stacking Room: Simulates heat and humidity conditions of warehouses to ensure that packages will properly withstand these adverse conditions.

FACILITY ENVIRONMENTAL ACTIVITIES:

- Tree-Mendous Maryland: Lever Brothers, through its Packaging Development and Baltimore manufacturing facilities, was the first corporate sponsor of the Tree-Mendous Maryland program. Administered by the Maryland Department of Natural Resources, the project is designed to plant trees and seedlings in the cloverleaf areas along the state's highways to absorb and filter air exhaust and rain water overflow. Lever's efforts have resulted in the planting of more than 1,000 trees, creating an additional four acres of forestry along Maryland's highways.

LEVER PACKAGING DEVELOPMENT CENTER:

LOCATION: 11404 Cronridge Drive
Owings Mills, Maryland 21117
(301) 581-2700

DEDICATED: September 18, 1990

DIRECTOR: Arnold Brown, Vice President, Packaging and Engineering

#

September 1992

Governor's Advisory Council on Recycling

November 2, 1992



Members in Attendance:

Dr. Harvey Alter, CHAIRMAN
Mr. Marcus Marx, Solid Waste Industry (representing Mr. George Hudnet)
The Honorable Joan B. Pitkin, Maryland House of Delegates
Mr. Michael Gagliardo, Northeast Maryland Waste Disposal Auth.
Mr. James Pittman, III, Maryland Department of the Environment
Mr. Lawrence Hayward, Packaging Industry
Dr. Dan Morhaim, General Public
Mr. Paul Hollinger, Packaging Industry
Mr. Cliff Wiley, Maryland Environmental Service (representing Mr. George Perdikakis)
The Honorable Gerald W. Winegrad, Maryland State Senate

Members not in Attendance:

Mr. Thomas Duncan, Maryland Association of Counties
Mr. Barry F. Scher, Mid-Atlantic Food Dealers Association
Mr. Michael Pelczar, Environmental Community
Mr. James Katcef, Food & Beverage Industry
Mr. Thomas Redmond, Recycling Industry

Others in Attendance:

Ms. Lori Scozzafava, Maryland Department of the Environment
Mr. Glenn Dodson, Maryland Dept. of the Environment
Mr. William Burroughs, Burroughs Consulting

The monthly meeting of the Governor's Advisory Council on Recycling was held on November 2, 1992 at Maryland Municipal League, with Dr. Harvey Alter convening the meeting at 9:00 a.m. This meeting was entirely dedicated to the development of the Governor's Advisory Council Final Report.

The Chairman announced that the Final Report will take until January to complete and the Council will meet accordingly.

Mr. Burroughs volunteered to draft a "Conclusions" chapter. All members are requested to forward three conclusions to him by fax, (410) 828-6746.

Chapters 1 - 9 were reviewed and changes were made. Dr. Alter will incorporate this changes into the document and provide this to the members for the next meeting.

GACR MINUTES
November 2, 1992

There continues to be considerable discussion concerning the tone of much that is being written. Some of the members, while not debating the correctness of the information stated in the report, are uncomfortable with what they believe is a negative tone in its presentation. Specific changes will be illustrated in the subsequent draft.

The meeting was adjourned at 12:00 noon. The next meeting is scheduled for December 7, 1992 from 9:00 a.m. until 12:00 p.m. at the Maryland Municipal League.

State of Maryland
Department of the Environment
Recycling/Compliance Division
2500 Broening Highway
Baltimore MD 21224

H69



Mr. Michael S. Miller
Court Of Appeals Building
361 Rowe Boulevard
Annapolis MD 21401

Governor's Advisory Council on Recycling

December 7, 1992

Members in Attendance:

Dr. Harvey Alter, CHAIRMAN
Mr. Thomas Duncan, Maryland Association of Counties
Mr. Marcus Marx, Solid Waste Industry
(representing Mr. George Hudnet)
The Honorable Joan B. Pitkin, Maryland House of Delegates
Mr. Michael Pelczar, Environmental Community
Mr. Michael Gagliardo, Northeast Maryland Waste Disposal Auth.
Mr. Scott Horne, Recycling Industry
Dr. Dan Morhaim, General Public
Mr. Paul Hollinger, Packaging Industry
Mr. Michael Taylor, Maryland Environmental Service
(representing Mr. George Perdikakis)
Ms. Lori Scozzafava, Maryland Department of the Environment
(representing Mr. James Pittman)
The Honorable Gerald W. Winegrad, Maryland State Senate
Mr. Scott Horne, Recycling Industry



Members not in Attendance:

Mr. Barry F. Scher, Mid-Atlantic Food Dealers Association
Mr. Lawrence Hayward, Packaging Industry
Mr. James Katcef, Food & Beverage Industry
Mr. Thomas Redmond, Recycling Industry

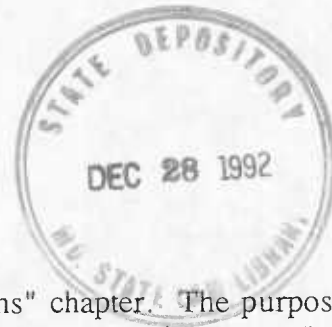
Others in Attendance:

Mr. Glenn Dodson, Maryland Dept. of the Environment
Mr. William Burroughs, Burroughs Consulting
Ms. Kathy Marx, Wheelabraidor
Mr. Kristen Hughes, Maryland Association of Counties
Ms. Maxine Adler, American Paper Institute

The monthly meeting of the Governor's Advisory Council on Recycling was held on December 7, 1992 at Maryland Municipal League, with Dr. Harvey Alter convening the meeting at 9:00 a.m. This meeting was entirely dedicated to the development of the "Conclusions" chapter of Governor's Advisory Council Final Report. Mr. Scott Horne was inadvertently omitted from the November minutes.

Ms. Scozzafava reported that MDE's Recycling Coordinator's Training Program was just completed and was a success. This was a two day training session that brought together representatives and coordinators from every part of the State.

GACR MINUTES
December 7, 1992



Consensus Conclusions

Mr. Burroughs conducted an exercise to draft the "Conclusions" chapter. The purpose of the exercise was to "reach conclusions for which all members will speak out in support". The "Plan of Attack" consisted of the following: 1) identify areas where conclusions need to be reached; 2) split into two subgroups, and work in parallel to develop draft conclusions; 3) share subgroup drafts with the entire group; 4) topic leaders pair off and develop consensus conclusions; 5) entire group review and modify the drafts 6) entire group decides process for further recommendations. The Council agreed to develop conclusions for six topics: Education, Markets, Financing, Economic Development and Planning, Legislation, and the concept of "One Earth".

The Council was able to complete steps 1 through 3 at this meeting. The topic leaders were asked to coordinate with each other to develop the conclusions which will be proposed to the Council at the January meeting.

Miscellaneous

It was stated that the charge of the Council was to determine how to efficiently recycle. Delegate Pitkin stated that the Legislature has committed to recycling. This council does not have to decide if recycling should be done but rather determine the best way to recycle. Senator Winegrad added that the citizens have overwhelmingly demanded recycling. It was stated that recycling has a primacy over other solid waste management options in Maryland. Dr. Pelczar stated that conservation of natural resources and environmental quality is the thrust of recycling. Delegate Pitkin added that reducing the waste of natural resources was an important factor in the determination to recycle.

The meeting was adjourned at 12:00 noon. The next meeting is scheduled for January 4, 1992 from 9:00 a.m. until 12:00 p.m. at the Maryland Municipal League.

Governor's Advisory Council on Recycling

January 4, 1993

Members in Attendance:

Dr. Harvey Alter, CHAIRMAN
Mr. Thomas Duncan, Maryland Association of Counties
Mr. Marcus Marx, Solid Waste Industry
(representing Mr. George Hudnet)
Mr. Michael Pelczar, Environmental Community
Mr. Michael Gagliardo, Northeast Maryland Waste Disposal Auth.
Mr. Lawrence Hayward, Packaging Industry
Mr. Scott Horne, Recycling Industry
Dr. Dan Morhaim, General Public
Mr. Michael Taylor, Maryland Environmental Service
(representing Mr. George Perdikakis)
Ms. Lori Scozzafava, Maryland Department of the Environment
(representing Mr. James Pittman)
The Honorable Gerald W. Winegrad, Maryland State Senate



Members not in Attendance:

Mr. Barry F. Scher, Mid-Atlantic Food Dealers Association
The Honorable Joan B. Pitkin, Maryland House of Delegates
Mr. Paul Hollinger, Packaging Industry
Mr. James Katcef, Food & Beverage Industry
Mr. Thomas Redmond, Recycling Industry

Others in Attendance:

Mr. Glenn Dodson, Maryland Dept. of the Environment
Mr. William Burroughs, Burroughs Consulting
Ms. Kathy Marx, Wheelabrator

The monthly meeting of the Governor's Advisory Council on Recycling was held on January 4, 1993 at the Maryland Municipal League, with Dr. Harvey Alter convening the meeting at 9:00 a.m. This meeting was dedicated to completing the development of the "Conclusions" chapter of the Governor's Advisory Council Final Report.

Consensus Conclusions

Mr. Burroughs continued the exercise, from the December meeting, to draft the "Conclusions" chapter. The purpose of the exercise was to "reach conclusions for which all members will speak out in support". The "Plan of Attack" consisted of the following: 1) identify areas where conclusions need to be reached; 2) split into two subgroups, and work in parallel to develop draft conclusions; 3) share subgroup drafts with the entire group; 4) topic leaders pair off and develop consensus conclusions; 5) entire group review and modify the drafts 6) entire group decides process for further recommendations. The Council agreed to develop conclusions for six topics: Education, Markets, Financing, Economic Development and Planning, Legislation, and the concept of "One Earth".

MD 43. Re 31:2/11/1993

GACR MINUTES

January 4, 1993

The Council was able to complete steps 4 and 5 at this meeting. Mr. Burroughs was asked to consolidate the conclusions and provide them to the Council before the February meeting.

Third Draft of Final Report

The Third Draft of the Final Report was provided to staff and will be forwarded to the members. Members are asked to review this draft and to make minor editorial comments by faxing or mailing the edited pages directly to Dr. Alter.

The Third Draft is both single and double spaced. The single spaced sections are those which were reviewed in both of the previous two drafts. The double spaced sections are those which are new to this draft or have only appeared in the Second Draft.

Chapters 1 through 3 of the Second Draft were combined into the "Introduction" of the Third Draft.

Dr. Alter stated that he made changes to the tone of the report as discussed in previous meetings.

Miscellaneous

The Council agreed to forego addressing its charge to "determine the need to construct recycling centers".

A separate section comprised only of recommendations will be provided to the members to assist them in their review process.

The meeting was adjourned at 12:00 noon. The next meeting is scheduled for February 1, 1993 from 9:00 a.m. until 12:00 p.m. at the Maryland Municipal League. Members should come prepared to make final changes to the report so that it may be forwarded to the Governor early in the Legislative Session.

Governor's Advisory Council on Recycling

February 1, 1993

Members in Attendance:

Dr. Harvey Alter, CHAIRMAN
Mr. Thomas Duncan, Maryland Association of Counties
Mr. Marcus Marx, Solid Waste Industry
(representing Mr. George Hudnet)
Mr. Michael Pelczar, Environmental Community
Mr. Michael Gagliardo, Northeast Maryland Waste Disposal Auth.
Mr. Lawrence Hayward, Packaging Industry
Mr. Scott Horne, Recycling Industry
Dr. Dan Morhaim, General Public
Mr. Michael Taylor, Maryland Environmental Service
(representing Mr. George Perdikakis)
Mr. James Pittman, Maryland Department of the Environment
The Honorable Joan B. Pitkin, Maryland House of Delegates
Mr. Paul Hollinger, Packaging Industry
The Honorable Gerald W. Winegrad, Maryland State Senate

Members not in Attendance:

Mr. Barry F. Scher, Mid-Atlantic Food Dealers Association
Mr. James Katcef, Food & Beverage Industry
Mr. Thomas Redmond, Recycling Industry

Others in Attendance:

Mr. Glenn Dodson, Maryland Dept. of the Environment
Ms. Lori Scozzafava, MDE
Mr. William Burroughs, Burroughs Consulting
Ms. Kathy Marx, Wheelabrator

The monthly meeting of the Governor's Advisory Council on Recycling was held on February 1, 1993 at the Maryland Municipal League, with Dr. Harvey Alter convening the meeting at 9:00 a.m. This meeting was dedicated to completing the Governor's Advisory Council Final Report. The minutes from the September through January meetings were adopted as previously amended.

Third Draft of Final Report

Comments were made by the members and will be included in the fourth draft which will be forwarded to the members. Anyone wishing to comment on the third draft should send written comments by faxing or mailing the edited pages directly to Dr. Alter.

Per the discussions in previous meetings, there was a debate by some of the members about the possible perceived negative tone of the report.



MD 13, RA 13.2/18/1993

GACR MINUTES
February 1, 1993

Miscellaneous

Senator Winegrad informed the members about the Solid Waste Accord recently held by the Department of the Environment. He explained that these meetings were comprised of representatives from industry, State and local government, and citizens groups who are affected by solid waste management practices. He added that the Accord was able to come to consensus on a number of issues being discussed by the Council and that the Department of the Environment has committed to implementing the decisions derived by the Accord members. The Accord suggested a 50% statewide recycling goal for MD for the year 2000 with significant changes in the acceptable materials. It was decided that wording would be added to the Final Report which acknowledged and supported the work of the Accord.

The meeting was adjourned at 12:00 noon. The next meeting is scheduled for March 15, 1993, from 9:00 a.m. until 12:00 p.m., at the Maryland Municipal League. This is the final meeting of the Board. Members should come prepared to make final comments on the Fourth Draft so that it may be forwarded to the Governor during the Legislative Session. This will also be a farewell meeting and coffee and donuts will be available. It was also suggested that members may want to stop for lunch after the meeting.

GOVERNOR'S ADVISORY COUNCIL ON RECYCLING

March 15, 1993



Members in Attendance:

Dr. Harvey Alter, *CHAIRMAN*
Mr. Thomas Duncan, *Maryland Association of Counties*
Mr. Michael Gagliardo, *Northeast Maryland Waste Disposal Authority*
Mr. Lawrence Hayward, *Packaging Industry*
Mr. Paul Hollinger, *Packaging Industry*
Mr. Marcus Marx, *Solid Waste Industry*
(representing Mr. George Hudnet)
The Honorable Joan B. Pitkin, *Maryland House of Delegates*
Mr. James Pittman, *Maryland Department of the Environment*
Mr. Michael Taylor, *Maryland Environmental Service*
(representing Mr. George Perdikakis)
The Honorable Gerald W. Winegrad, *Maryland State Senate*

Absent Members:

Dr. Michael Pelczar, *Environmental Community*
Mr. James Katcef, *Food and Beverage Industry*
Dr. Dan Morhaim, *General Public*
Mr. Thomas Redmond, *Recycling Industry*
Mr. Barry F. Scher, *Mid-Atlantic Food Dealers Association*

Others in Attendance:

Mr. William Burroughs, *Burroughs' Consulting*

The last monthly meeting of the Governor's Advisory Council on Recycling was held on March 15, 1993 at the Maryland Municipal League, with Dr. Alter convening the meeting at 9:00 a.m. This meeting was dedicated to discussing the final changes to the Final Report. All members will receive a final copy of the Report once available.

The February 1, 1993 minutes were amended to read as follows: "Per the discussions in previous meetings, there was a debate by some of the members about the possible perceived negative tone of the report" in two portions.

Mr. Pittman thanked Dr. Alter for his dedication in serving as Chairman to the Council. Dr. Alter will be preparing a letter to Mr. Jon C. Burrell, Executive Director of the Maryland Municipal League, expressing appreciation for the use of the conference room.

The meeting adjourned at 12:45 p.m.

md 83. Re 31:219/1993

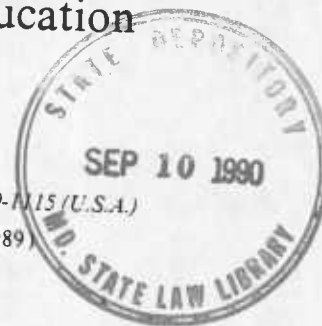
Misc. Mats.

Recycling as appropriate behavior: a review of survey data from selected recycling education programs in Michigan

Raymond De Young

The University of Michigan, School of Natural Resources, Ann Arbor, MI 48109-1115 (U.S.A.)

(Received July 13, 1989; accepted in revised form September 30, 1989)



ABSTRACT

De Young, R., 1990. Recycling as appropriate behaviour: a review of survey data from selected recycling education programs in Michigan. *Resour. Conserv. Recycl.*, 3: 253-266.

Data from surveys conducted by six separate recycling education programs funded under the Clean Michigan Fund are compared. The findings indicate that a strong pro-recycling attitude exists among the populations sampled with a significant percentage of respondents planning to increase their level of recycling in the future. To aid this increase in participation these data suggest that education efforts should focus on helping people become more familiar with the details of how to recycle. And finally, these data support the idea that efforts to promote waste reduction and recycling behavior should focus on non-monetary motives.

INTRODUCTION

Recycling of household solid waste offers one means of managing the burden of municipal solid waste. Yet if recycling is to make a major impact it is vital that people make this behavior the norm rather than the exception. Recycling education programs are a major means of achieving such a state. They seek to increase society's knowledge about waste reduction and recycling behaviors, develop a positive attitude about such behavior, and encourage non-participating households to begin and participating households to increase their behavior. The research reported here utilized survey data to assess the degree to which several recycling education programs in Michigan are meeting these goals.

METHODS

As a part of their Clean Michigan Fund program, the Michigan Department of Natural Resources (MDNR) funded thirteen recycling education pro-

grams for the period from early 1986 through the middle of 1987. A number of programs utilized surveys of randomly selected citizens to assess the effectiveness of their education efforts. The author was contracted by the MDNR to provide these programs with help in conducting written/mail-back or telephone surveys on recycling attitudes and behavior. The surveys were conducted by the individual programs using their paid or volunteer staff.

The samples

The survey data presented below are from six separate recycling education programs. A comparison across programs is possible because each included, as part of their survey instrument, the set of six standardized questions described below. The first four programs listed had their data analyzed by the author. The last two programs provided summaries of their data analysis. The six participating programs, their sample size and whether they employed a telephone survey or a mail-back written questionnaire, are identified in Table 1.

All samples were drawn randomly from the local communities except for the Northern Michigan Recycling Cooperative (NMRC) program. The NMRC conducted one survey of local government officials and another of people who, at one time or another, had called the recycling information telephone number to ask a question about recycling. Neither of these samples can be considered completely random.

The Portage program was the only community to conduct a two-phase evaluation. A base-line survey was completed just prior to the start of their education effort and a follow-up survey was administered near the end of the

TABLE 1

Description of surveys

| Program location | Survey type | Sample size | Community population |
|----------------------------------|-------------|----------------------|----------------------|
| Barry County | Telephone | 95 | 46 300 |
| Huntington Woods | Mail | 286 | 6 700 |
| Jackson County | Telephone | 86 | 151 000 |
| Monroe County | Mail | 36 | 142 000 |
| Northern Michigan Recycling Coop | Mail | 20/37 ^a | 410 000 |
| Portage | Telephone | 259/323 ^b | 40 200 |
| Publishers Paper Company Study | | | |
| Metropolitan areas | Telephone | 1 500 | |
| Rural Oregon | Telephone | 250 | |

^aLocal officials and 1-800 number respondents, respectively.

^bSample size for the pre-test and post-test, respectively.

effort [1]. The other five programs conducted one survey near the end of their education effort.

Data from all six programs are also contrasted with data from a similar survey conducted in 1984 by the Intercept Research Corporation for Publishers Paper Company of Lake Oswego, Oregon. This study was conducted to learn more about west coast recycling attitudes and behaviors [2]. The communities surveyed included Portland, Seattle, San Francisco, Denver, Salt Lake City, Vancouver, B.C. and eastern rural Oregon. This telephone survey included a set of six questions virtually identical to the six standardized questions used in the Michigan studies. The randomly drawn sample size was 1750 with 1500 from metropolitan areas (250 from each city) and 250 from rural areas of Oregon.

The survey questions

The survey questions were designed to assess people's attitude about recycling, self-reported behavior, future behavioral intentions, perceived barriers to recycling and motives for recycling. The specific questions are described below.

In an effort to assess their general attitude toward recycling the respondents were asked to evaluate the importance of recycling. For five of the recycling education program surveys and the Publishers Paper Company survey the full text of the question read, "How important is recycling to the preservation of the environment and the conservation of our natural resources?" For the Northern Michigan Recycling Cooperative (NMRC) survey of local government officials the question was worded, "Please indicate how important you feel recycling is as a component of solid waste management?" The questionnaires used a five-point Likert response scale ranging from "not important" to "very important". A "don't know" response was also included. The users of the NMRC telephone number were not asked an attitudinal question.

Most of the surveys asked the respondents to self-report their recycling behavior. Based on their answer the respondents were classified as a recycler or a non-recycler. This question was not asked of the Huntington Woods and Monroe County respondents. For the other Michigan communities, this item was worded, "Are you a recycler?" In the Publishers Paper Company survey this question was worded, "Does your household currently recycle newspaper, cardboard, glass or aluminium?"

It is not unusual for respondents to report their behavior intent rather than their actual behavior. For this reason it is often preferable to classify a respondent as a recycler using direct observational data. There are, however, other means of improving the internal validity of a study. For instance, one gains a check on self-reported recycling behavior by asking what materials people recycle. The respondents were asked to consider a list of materials and

indicate which ones they recycled. All the Michigan programs included standard recycling materials in their list: newspaper, cardboard, used oil, plastic, glass and other. Several programs also included such materials as magazines, cans, or aluminum.

In an effort to assess the direction of change in future recycling behavior, respondents in five of the Michigan programs and the Publishers Paper Company study were asked, "In the future, do you plan to increase your recycling efforts, decrease your recycling efforts, or maintain your current recycling efforts?" Note that for the Portage program only those respondents who had indicated that they currently recycled were asked this question. The Northern Michigan Recycling Cooperative respondents were not asked this question.

In any attempt to change people's behavior one must address the problem of barriers people identify as preventing them from recycling. The respondents were asked the stem question, "What are some reasons you don't recycle more?" and were given a list of several reasons they could check off. The reasons are listed in Table 2.

Finally, an item was included in all six Michigan surveys that assessed what some of the motives for recycling might be. The respondents were presented with one general stem question worded as follows, "Below are several reasons why people might recycle materials. Please indicate on a five-point scale the degree to which they apply to you." The scale had the lower tag of "not at all" and the upper tag of "very great deal". A "don't know" response was also included. The stem question was purposely worded to get at possible rather

TABLE 2

Survey question on perceived barriers to recycling^a

Questions

Recycling is too much of a hassle
 There is not enough room to store the items
 There is not enough time to sort or bundle all the items
 I simply forget to recycle
 I don't know just what to do
 Recycling cost me too much money^b
 The messiness recycling causes around the house
 There is no facility/pick-up service available

^aDepending on the program, the stem question was asked of (1) all respondents, or (2) the recycling and non-recycling subsamples of respondents. When the sample included all respondents or recyclers, the item was worded "What are some reasons you don't recycle more?" Where the sample included non-recyclers the question was worded, "What are some reasons you don't recycle?" For the Northern Michigan Recyclers Cooperative (NMRC) survey, this question was asked of the local government officials.

^bFor the Publishers Paper Company survey the item concerning costs was worded, "Not worth the money".

than current motives since in no instance was there any direct monetary reward offered for recycling nor any strong tie to a charity. This stem question was followed by the following specific items which the respondents were asked to rate: (1) "I recycle to help conserve natural resources," (2) "I recycle to help support charity," (3) "I recycle to earn money," and (4) "I recycle because it seems like the right thing to do." The Northern Michigan Recycling Coop study asked the local officials whether they felt the public would be motivated to recycle for these four reasons.

RESULTS AND DISCUSSION

The results are presented in Tables 3 through 8 and reviewed below, question by question.

Recycling attitude

For all program surveys, about 85% of the respondents indicated they thought recycling was extremely important to the preservation of the environment (i.e., selected categories 4 or 5 on the five-point scale). As shown in Table 3 the mean score on this question ranged from 4.22 to 4.62 (out of a maximum possible score of 5) with the Michigan communities having slightly higher mean values than the Publishers Paper Company sample.

The data for Portage, the only program to conduct a base-line and follow-up survey, show a drop over time. About 86% of the Portage respondents indicated recycling was extremely important in the base-line survey while about 81% indicated recycling was extremely important in the follow-up survey.

TABLE 3

Mean ratings on the recycling attitude question

| Program location | Mean | Standard deviation |
|-------------------------------------|------|--------------------|
| Barry County | 4.62 | 0.67 |
| Huntington Woods | 4.42 | 0.88 |
| Jackson County | 4.40 | 0.86 |
| Monroe County | 4.55 | 0.69 |
| NMRC (local officials) ^a | 4.59 | 0.79 |
| Portage (base-line respondents) | 4.40 | 0.88 |
| Portage (follow-up respondents) | 4.21 | 1.01 |
| Publishers Paper (entire sample) | 4.27 | 0.94 |
| Metropolitan areas | 4.28 | 0.93 |
| Rural Oregon | 4.22 | 1.01 |

^aThis question was asked of the local officials only.

vey. This difference, although in the direction of the base-line survey, is slight. In part, the apparent failure of the Portage program to improve the respondent's attitude toward recycling might be partially explained by the extremely positive attitude held by the respondents. With a vast majority of the respondents holding a strong positive attitude in the base-line survey there was limited room for improvement.

Taken together these data are encouraging. In all instances a vast majority of respondents viewed recycling as an important behavior. The opportunity for recycling education programs to improve upon the current pro-recycling attitude may be limited. With little room for improvement, programs might be well advised to concentrate on something other than people's attitude about the behavior.

Recycling behavior

The percentage of respondents indicating they currently recycled was high, ranging from 54 to 86%. In all instances the Michigan data are similar to the Publishers Paper Company study findings (see Table 4). The Portage program data showed a very modest 1% increase in recycling behavior between the base-line and the follow-up survey.

It is worth noting that a surprisingly high percentage of respondents reported that they were recyclers. Although past studies [3] of recycling behavior have reported similar percentages these data should be viewed with at least some caution. There are a number of reasons to believe that the figures are slightly inflated. Foremost is the fact that recycling is becoming a form of socially acceptable behavior. Recycling, once an eccentric activity, may now be the social norm. One may credit this change to environmental education

TABLE 4

Responses on the recycling behavior question^a

| Program location | Recyclers (%) | Non-recyclers (%) |
|--|------------------|----------------------|
| Barry County | 73.7 | 26.3 |
| Jackson County | 63.1 | 36.9 |
| NMRC (1-800 number respondents) ^b | 86.5 | 13.5 |
| Portage (base-line respondents) | 54.4 | 45.6 |
| Portage (follow-up respondents) | 55.5 | 44.5 |
| Publishers Paper (entire sample) | 68.0 | 32.0 |
| Metropolitan areas | 69.0 | 31.0 |
| Rural Oregon | 61.0 | 39.0 |

^aThis question was not asked of the Huntington Woods or Monroe County respondents.

^bThis question was asked of the 1-800 number respondents only.

successes over the last decade. However, with such success can come an "over-reporting" of the behavior. Furthermore, respondents may sometimes indicate their intentions to recycle rather than their actual behavior. Without utilizing an extensive definition of what the survey means by "recycling" or holding the respondent to a tight time frame for their assessment (both somewhat counterproductive to a brief, readable questionnaire), respondents may recall a wide range of behaviors occurring over a multi-year period and assess all of them to be instances of recycling. For instance, respondents may consider returning deposit bottles to the market twice during the last year as recycling behavior.

However, even if caution is warranted, these data still indicate that citizens in Michigan, as represented by the respondents, had come to accept recycling as an important and appropriate behavior. In Michigan, a pro-recycling attitude had been translated into a stated willingness to recycle.

Materials recycled

Reported recycling behavior has always varied by material. For instance, in an earlier survey approximately 55% of the residents of Seattle, Washington indicated that they recycled newspaper, 42% recycled glass containers and 38% recycled aluminium cans. Approximately 20% indicated that they recycled all three materials [4]. Recycling practitioners have suggested a tentative sequence with newspapers being recycled most often followed by glass containers and metal cans, and then other materials.

The data from both the Clean Michigan Fund programs and the Publishers Paper Company study follows the general sequence outlined above (see Table 5). Newsprint is recycled by the largest percentage of respondents (ranging from 31 to 92%). The next most widely recycled material varies depending upon the community studied with glass containers, metal cans or aluminum having similar percentages (ranging from 7 to 46% of the respondents).

It is worth noting that two materials which were relatively new to the Michigan recycled waste stream, used oil and plastics, were being recycled by a significant percentage of respondents. Used oil was being recycled by approximately 20% of the respondents (with a range of 8 to 51%) and plastics by about 10% of the respondents (with a range of 4 to 19%).

In the case of Huntington Woods where both used motor oil and plastic milk jugs were promoted in their education program, there was a significant number of respondents (approximately 18%) indicating that they recycled these products. The Northern Michigan Recyclers Cooperative survey of users of their 1-800 recycling information telephone number indicated a slight majority (51% of the respondents) recycled used motor oil. This percentage is all the more impressive when one realizes that the recycling of used motor oil was not a major focus of the NMRC education effort.

TABLE 5

Responses on the materials recycled question^a

| Program location | Percentage responding yes for each material | | | | | | | | |
|---------------------------------------|---|------|------|------|------|------|------|------|------|
| | NEWS | MAGS | CARD | OIL | PLAS | GLAS | CANS | ALUM | OTHR |
| Barry County | 50.5 | 28.4 | 13.7 | 22.1 | 4.2 | 24.3 | 18.9 | 20.0 | 15.8 |
| Huntington Woods ^b | 67.1 | — | 5.2 | 17.5 | 18.9 | 4.9 | — | — | 7.0 |
| Jackson County | 30.6 | 15.3 | 8.2 | 18.8 | 7.1 | 43.5 | 30.6 | 31.8 | 4.7 |
| Monroe County | 45.7 | 22.9 | 2.9 | 8.3 | 13.9 | 22.2 | 25.0 | 22.2 | 2.8 |
| NMRC (1-800 respondents) ^c | 59.4 | — | 43.2 | 51.4 | 10.8 | 24.3 | 29.7 | 18.9 | 16.2 |
| Portage (base-line survey) | 51.0 | 40.9 | 22.0 | 19.7 | 2.3 | 6.9 | 8.1 | 10.0 | 4.6 |
| Portage (follow-up survey) | 47.4 | 36.8 | 16.1 | 25.1 | 10.5 | 13.6 | 15.2 | 12.4 | 3.7 |
| Publishers Paper | 86.0 | 16.0 | 21.0 | — | — | 27.0 | — | 44.0 | 4.0 |
| Metropolitan areas | 85.0 | 16.0 | 20.0 | — | — | 26.0 | — | 46.0 | 2.0 |
| Rural Oregon | 92.0 | 18.0 | 27.0 | — | — | 31.0 | — | 27.0 | 1.0 |

^aNEWS = newsprint

MAGS = magazines

CARD = corrugated cardboard

OIL = used motor oil

PLAS = plastic (no type specified)

GLAS = glass (clear, green or brown)

CANS = metal cans

ALUM = aluminum (foil, seals)

OTHR = other materials (unspecified)

— = item not included on the survey instrument

^bThe Huntington Woods questionnaire asked separately about "returnable bottles" and "non-returnable glass". The percentage shown is for the recycling of non-returnable glass containers.^cThis question was asked of the 1-800 number respondents only.

Finally, the Portage program was apparently most effective in promoting the recycling of such materials as used motor oil, plastic, glass, and cans. It is worth noting that prior to the Portage Recycling Program there were few places in or around Portage where people could readily recycle used motor oil, plastic, glass or cans. Since the establishment of the Portage Program these materials can easily be recycled at the Portage Recycling Center, a point made clear in their education efforts. These data suggest that the Portage Program was effective at promoting the recycling of non-paper related materials, including the newer entries to the recycling waste stream (i.e., used oil and plastic).

Behavioral intent

A majority of the respondents (ranging from 57 to 78%) intended to maintain their current level of recycling behavior (refer to Table 6). Virtually all of the remaining respondents (ranging from 20 to 42%) indicated that they planned to increase their level of recycling activity in the future. These data compare very favorably with the Publishers Paper survey data where only 21% indicated they planned to increase their recycling behavior.

The Portage data document a dramatic shift in future recycling plans among the survey respondents. Approximately 12% of the respondents switched from

TABLE 6

Respondent's future intentions with respect to recycling^a

| Program location | Increase behavior (%) | Maintain behavior (%) | Decrease behavior (%) |
|---|-----------------------------|-----------------------------|-----------------------------|
| Barry County | 37.0 | 63.0 | 0 |
| Huntington Woods | 37.5 | 62.5 | 0 |
| Jackson County | 28.6 | 71.4 | 0 |
| Monroe County | 42.4 | 57.6 | 0 |
| Portage (base-line respondents) ^b | 20.2 | 78.4 | 1.4 |
| Portage (follow-up respondents) ^b | 32.4 | 66.5 | 1.1 |
| Publishers Paper (entire sample) ^c | 21.0 | 74.0 | 1.0 |
| Metropolitan areas | 21.0 | 74.0 | 2.0 |
| Rural Oregon | 21.0 | 73.0 | 0 |

^aNeither subgroup of the Northern Michigan Recyclers Coop study were asked about their intentions.

^bPercentages for Portage are based upon the subsample of respondents who indicated they currently recycled ($N=139$ and 173 , respectively).

^cThe percentage shown for the Publishers paper Company survey do not add to 100% due to those respondents who did not know their future intentions.

planning to just maintain their current level of recycling behavior to planning to increase their level of activity.

Overall, a significant percentage of respondents indicated they had plans to increase their level of recycling behavior in the future. Furthermore, virtually none of the respondents indicated that they planned to recycle less in the future. These data bode well for future recycling efforts since they suggest that participation rates can be expected to climb. However, one must capitalize on these good intentions. Future programs should focus their efforts on motivating people to turn their good intentions into actual behavior. This might be accomplished by helping people to overcome perceived barriers, by promoting the recycling of a wider range of materials and by employing motivational techniques.

Barriers to recycling

The major perceived barriers to recycling are surprisingly consistent regardless of which subgroup, recyclers or non-recyclers, is examined (see Table 7). The respondents reported the following problems, in approximate order: (1) not enough information, (2) not enough room to store the items being recycled, and (3) recycling being too much of a hassle. The messiness recycling can cause and recycling facilities not being available were also mentioned as reasons people do not recycle more or at all.

TABLE 7

Responses on the barriers to recycling question^a

| Program location | Percentage responding yes for each barrier | | | | | | | | |
|---|--|------|------|------|------|------|------|------|------|
| | HASS | ROOM | TIME | FORG | INFO | COST | MESS | CONV | OTHR |
| <i>Using entire sample</i> | | | | | | | | | |
| Barry County | 27.4 | 45.3 | 24.2 | 24.2 | 56.8 | 10.5 | 40.0 | — | — |
| Huntington Woods | 21.3 | 32.5 | 17.5 | 34.6 | 17.5 | 1.7 | 25.2 | 23.8 | — |
| Jackson County | 34.1 | 47.1 | 23.5 | 30.6 | 37.6 | 10.6 | 30.6 | 43.5 | — |
| Monroe County | 47.1 | 51.4 | 36.4 | 33.3 | 51.6 | 12.5 | 50.0 | — | — |
| NMRC (local officials) ^b | 50.0 | 40.0 | 30.0 | 30.0 | 55.0 | 25.0 | 30.0 | 50.0 | 10.0 |
| <i>Using subsample of recyclers</i> | | | | | | | | | |
| Portage (base-line) N=141 | 30.4 | 31.9 | 22.7 | 17.0 | 45.4 | 5.0 | 18.4 | — | 11.3 |
| Portage (follow-up) N=177 | 50.6 | 38.7 | 30.5 | 37.7 | 29.5 | 6.9 | 31.0 | — | 9.8 |
| Publishers Paper N=898 | 24.0 | 8.0 | 10.0 | 5.0 | — | 4.0 | — | 11.0 | 20 |
| Metro areas N=786 | 24.0 | 7.0 | 10.0 | 4.0 | — | 4.0 | — | 9.0 | 2.0 |
| Rural Oregon N=112 | 19.0 | 15.0 | 9.0 | 7.0 | — | 5.0 | — | 26.0 | 0 |
| <i>Using subsample of non-recyclers</i> | | | | | | | | | |
| Portage (base-line) N=118 | 44.1 | 46.6 | 27.1 | 15.3 | 32.2 | 11.0 | 22.0 | — | 20.3 |
| Portage (follow-up) N=145 | 51.0 | 42.1 | 38.6 | 34.5 | 47.6 | 9.7 | 33.0 | — | 9.1 |
| Publishers Paper N=560 | 37.0 | 8.0 | 11.0 | 4.0 | — | 4.0 | — | 26.0 | 4.0 |
| Metro areas N=463 | 40.0 | 8.0 | 11.0 | 5.0 | — | 4.0 | — | 23.0 | 4.0 |
| Rural Oregon N=97 | 25.0 | 7.0 | 7.0 | 3.0 | — | 6.0 | — | 43.0 | 5.0 |

^aHASS = recycling is too much of a hassle

ROOM = there is no room to store sorted items

TIME = there is no time to sort or bundle all the items

FORG = I simply forget to recycle

INFO = I don't know just what to do

COST = recycling costs me too much money

MESS = the messiness recycling causes around the house

CONV = there is no facility/pick-up service available

OTHR = another unspecified barrier

— = time not included on the survey instrument

^bThis question was asked of the local officials only.

It is interesting to note that the local government officials surveyed by the Northern Michigan Recycling Coop differed most dramatically from the other respondents (i.e., the public) on at least one of the nine reasons. These officials were asked, "Please check those items that you believe people find to be barriers to recycling." The data indicate that the local government officials overstated the salience of personal cost as a barrier to increased recycling.

The Publishers Paper Company study found that the major barrier among recyclers and non-recyclers alike was the perception that recycling was too much of a hassle. While something being "too much of a hassle" seems like a vague concept, respondents had shown no problem in identifying it as a major reason they do not recycle more or at all. Previous research supports the notion of inadequate storage space being a major barrier to increased recycling activity [3].

A particularly interesting finding is that a lack of information (i.e., not

knowing exactly what to do to recycle) consistently shows up as a major reason people do not recycle more often or at all. One should not interpret this as an attitudinal issue. People are not saying that they consider recycling to be an inappropriate behavior. They are, instead, indicating a lack of familiarity with the basic aspects of the behavior – they do not know what they need to do to recycle glass jars sitting in their sink. The Portage data show a dramatic contrast between the recycling and non-recycling subsamples on the information issue. Recyclers may have been influenced by the formation made available during the education effort – they reported information as much less of a barrier to increased behavior in the follow-up survey. For non-recyclers just the opposite effect was found. In a rank order analysis of the Portage data it was found that, for recyclers, the major issue at the time of the base-line survey was the information item. This same item underwent the largest change in ranking dropping to number six by the follow-up survey. For the non-recycler subsample, the information item underwent only a minor ranking change. This item was ranked third in the base-line survey and actually rose to second by the follow-up survey [1].

Why people do not recycle more (or at all) gets at the major issue confronting every recycling education effort. Overall these data suggest that education efforts should concentrate on helping people become familiar with the desired behavior. This finding is supported by a recent study which found that non-recyclers differed significantly from recyclers mainly in the degree to which they required additional information about the behavior [5].

Recycling motivation

The data reported in Table 8 indicates the same motivational tendency exists among the respondents of both the Clean Michigan Fund Programs and the Publishers paper Company survey. The respondents are most inclined toward the non-monetary motive of recycling to help conserve natural resources. Closely behind this motive is recycling to help support a charity and recycling because it seems like the right thing to do. Ranked a distant fourth is the economic motive of recycling to earn money. Clearly, a majority of the respondents do not consider recycling to earn money to be a strong motive for the behavior.

These findings are supported by current research on conservation behavior. Clearly, research has confirmed that at least a modest tie exists between extrinsic (particularly economic) motivation and conservation behavior [6]. However, research has also documented an association between intrinsic motivation and recycling behavior [7].

And finally, it was again found that the decision-makers held a unique view of the public they represent. The study by the Northern Michigan Recycling Coop shows that local officials evaluated the public's motives somewhat dif-

TABLE 8

Mean ratings on the recycling motivation questions^a

| Program location | Mean | Standard deviation |
|--|------|--------------------|
| <i>Recycle to help conserve natural resources</i> | | |
| Barry County | 4.35 | 0.96 |
| Huntington Woods | 4.15 | 1.08 |
| Jackson County | 4.14 | 1.00 |
| NMRC (1-800 number respondents) | 4.41 | 1.01 |
| NMRC (local officials) | 4.10 | 1.15 |
| Portage (base-line respondents) | 3.88 | 1.39 |
| Portage (follow-up respondents) | 3.97 | 1.32 |
| Publishers Paper (entire sample) | 4.10 | 1.27 |
| Metropolitan areas | 4.07 | 1.27 |
| Rural Oregon | 4.30 | 1.24 |
| <i>Recycle to help support a charity</i> | | |
| Barry County | 4.31 | 1.19 |
| Huntington Woods | 3.90 | 1.17 |
| Jackson County | 4.24 | 1.08 |
| NMRC (1-800 number respondents) | 3.71 | 1.27 |
| NMRC (local officials) | 3.56 | 0.98 |
| Portage (base-line respondents) | 4.12 | 1.37 |
| Portage (follow-up respondents) | 4.17 | 1.29 |
| Publishers Paper (entire sample) | 4.06 | 1.30 |
| Metropolitan areas | 4.01 | 1.33 |
| Rural Oregon | 4.38 | 1.08 |
| <i>Recycle to earn money</i> | | |
| Barry County | 2.43 | 1.70 |
| Huntington Woods | 1.96 | 1.32 |
| Jackson County | 2.42 | 1.61 |
| NMRC (1-800 number respondents) | 2.72 | 1.48 |
| NMRC (local officials) | 3.56 | 1.42 |
| Portage (base-line respondents) | 2.50 | 1.61 |
| Portage (follow-up respondents) | 2.57 | 1.66 |
| Publishers Paper (entire sample) | 2.24 | 1.53 |
| Metropolitan areas | 2.24 | 1.52 |
| Rural Oregon | 2.27 | 1.57 |
| <i>Recycle because it seems like the right thing to do</i> | | |
| Barry County | 4.14 | 1.24 |
| Huntington Woods | 3.53 | 1.32 |
| Jackson County | 3.75 | 1.26 |
| NMRC (1-800 number respondents) | 4.12 | 1.32 |
| NMRC (local officials) | 3.47 | 1.23 |
| Portage (base-line respondents) | 4.23 | 0.56 |
| Portage (follow-up respondents) | 4.32 | 1.30 |

^aThe Monroe County survey instrument utilized a 4-point response scale thus not allowing direct comparisons. The Publishers Paper Company study did not include the last item.

ferently than did the public. Local officials tended to overestimate the role monetary incentives play and slightly underestimate the strength of all the other motives.

Overall these data suggest that when promoting waste reduction and recycling one should include a discussion of non-monetary motives. Programs should concentrate on the effect recycling has on the environment, any benefits recycling may have for a charitable organization and the personal, intrinsic satisfaction gained from doing the right thing.

CONCLUSION

Interpreting data collected from surveys is always a challenging task. The task is made all the more challenging when the data are collected by others using a variety of data collection styles and sample sizes. Nonetheless, the findings remained consistent across the different surveys. The public, as represented by the respondents, holds a strong pro-recycling attitude, intends to increase their level of recycling behavior in the future and is greatly influenced by non-monetary motives. Recycling, once an aberrant and rarely practiced behavior, is becoming the social norm.

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PUBLIC ATTITUDES TOWARDS GLASS RECYCLING IN SCOTLAND

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This paper describes a research project into public attitudes towards glass recycling in Scotland which was undertaken with the objective of identifying ways of increasing the recycling rate. Interviews were carried out of users and non-users at a number of sites in different districts in Scotland with the object of ascertaining the knowledge of glass recycling, motivation and behaviour of both groups. The results gave considerable insights into the types of people that were involved in recycling, their aspirations, motivation, types of trip, mode of transport etc. Significant insights into motivation of non-recyclers were also obtained. Interestingly, it seemed that glass recycling promotional campaigns had made little impact on either group.

A number of conclusions were drawn from the study and suggestions about the appropriate targeting of future promotional campaigns put forward.

Key Words—glass, glass recycling, public attitudes, participants, non-participants, Scotland

1. Introduction

In Great Britain recycled glass makes an important contribution to the glass manufacturing industry. According to the Glass Gazette (1988), some 233,000 tons (13% of national consumption) of recycled glass, was used in 1987. Much of this was recovered from domestic sources through bottle bank schemes. In these schemes members of the public separate their glass and then return them to the bottle bank which is located at a central point.

Most bottle bank schemes are run by local authorities in co-operation with glass manufacturers. Glass manufacturers use recycled glass in their manufacturing process to take advantage of economic benefits that can result from savings in energy and raw materials. In glass manufacturing a proportion of recycled glass (cullet) is added to the glass manufacturing process. Studies carried out by Ball and Matthews (1988) indicate that most schemes also make a positive financial contribution to the local authority concerned.

All glass recovered in Scotland is taken to a glass manufacturing plant in Alloa to be recycled. Although substantial volumes of glass are already recycled, glass manufacturers could derive significant economic benefit from utilizing much higher volumes of recycled material. At present around two-thirds of all District Councils in Scotland run waste glass collection operations and these cover the vast bulk of the Scottish population. Those not running schemes are, generally, small rural authorities situated at uneconomic haulage distances from Alloa. Thus utilization of larger volumes of recycled glass will depend principally on collection of greater volumes from existing operations.

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2. Previous research studies

A general survey of attitudes towards recycling was carried out by the Conservation and Development Programme (MORI, 1983). This survey investigated general levels of concern and public awareness of the deterioration of the environment and its effect on the quality of life. More than 50% of respondents felt that waste recycling would create jobs and 25% said that it would increase prosperity.

Friends of the Earth (1981) have, however, concluded from some of their studies that environmentally concerned attitudes will not necessarily lead to environmentally positive behaviour. Kuylen and Van Raaj (1979) have examined psychological factors that influence participation in glass recycling schemes. These authors conclude that participation in a glass recycling scheme will depend on a number of internal and external factors. Considering internal factors, the authors believe that ecological concern would only result in participation in a recycling scheme if the consumer accepted responsibility for ecological problems and if he perceived that his contribution was effective and could lead to desired goals. External factors believed to be important included the quality of the home, quality of neighbourhood and distance to glass recycling container. Kuylen and Van Raaj divided the population up into five groups with differing motivations.

Recyclers can be classified according to motivation and include: the *economic recyclers* who participate in the glass recycling programme because of economic, financial or practical reasons, e.g. for saving space in garbage containers or as an easy way to get rid of empty bottles and jars; *social recyclers* participate in the glass recycling programme for social reasons, e.g. garbage collectors will not be hurt by broken glass; *ecological recyclers* participate because of their environmental concern to save energy and resources.

Non-recyclers can be classified thus: legitimate non-recyclers who do not participate in the glass recycling programme because they re-use their empty bottles and jars for their own purposes (e.g. wine-making, jam-making); and the non-recyclers who do not have a legitimate reason for non-participation.

The authors outline a number of possible strategies for increasing consumer participation in recycling campaigns. They believe that promotional strategies should emphasize the availability of, and access to, the recycling containers; trying to overcome the psychological obstacle of large perceived distance with emphasis on easily accessible locations. The other main goal of promotional campaigns should be to increase the perceived effectiveness of an individual's contribution, acceptance of responsibility and willingness to sacrifice for the benefit of the environment.

Sheth (1978) distinguishes four strategies for increasing consumer participation. These are illustrated in Table 1.

TABLE 1
Strategies for increasing consumer participation

| Actual behaviour | Psychological orientation | |
|------------------|----------------------------|------------------------------|
| | Recycler | Non-recycler |
| Recycler | (A) Reinforcement strategy | (B) Rationalisation strategy |
| Non-recycler | (C) Inducement strategy | (D) Confrontation strategy |

In cell *A*, when the consumer is psychologically predisposed to recycling and is also involved in recycling, a strategy of *reinforcement* is appropriate. This can be done by education and information about the results of the glass recycling programme.

In cell *D* where the consumer is psychologically opposed to recycling and, in fact, is not involved in recycling, then a *confrontational* strategy is suggested. Economic disincentives and mandatory rules are clearly inappropriate in the glass recycling situation. Therefore the approach of trying to educate the consumer into unlearning old habits and to learn new desirable behaviour must be adopted.

In cell *B*, consumers are actually carrying out recycling but are not psychologically attracted towards it. A rationalisation strategy to persuade these consumers to continue their desired behaviour is suggested here. This may entail trying to exaggerate the positive effects of their behaviour.

In cell *C* consumers have the desired psychological make-up but do not follow through and actually undertake recycling work. The approach to these individuals should be to try to overcome the actual or perceived inhibiting factors. This is called an inducement strategy. Emphasizing the ease and convenience of bottle bank use may be a suitable approach to this group.

O'Riordan and Turner (1979) report on a recycling survey carried out in Norwich. The primary focus of this survey was on waste paper recycling but questions relating to glass recycling were also included. A public willingness to respond to glass recycling initiatives was identified although respondents seemed only moderately disposed to see Norwich City Council itself make a greater effort to recycle glass bottles (62% in agreement).

Glass Manufacturers' Federation (1982) commissioned several surveys into public attitudes towards bottle banks. The 1982 study covered 1700 people in 50 towns with or without bottle banks. The survey found a positive attitude towards recycling with 91% of respondents feeling that more recycling schemes should be introduced to recover materials from non-returnable bottles and cans. Eighty-three percent of those interviewed felt that bottle banks were a more convenient place for glass than the dustbin. Over half the respondents interviewed (54%) claimed to use bottle banks, although some felt they were situated in the wrong place. Only 8% however felt they were an intrinsically bad idea.

The following were given as the most important motivational factors:

| | |
|---|-----|
| Getting rid of unwanted bottles | 34% |
| Safety | 25% |
| Recycling and conservation of resources | 17% |

Surprisingly, 30% of users travelled more than five miles to get to a bottle bank and the car was the dominant mode of transport used by recyclers.

3. Research methodology

It was planned to investigate public attitudes towards glass recycling by means of questionnaire interviews of both users and non-users at different sites. This questionnaire focuses on the following topics:

- Attitudes towards recycling; trip type, frequency and mode of transportation, knowledge of bottle banks, impact of publicity, promotional efforts and details of respondents.

The non-users questionnaire focuses on the following topics:

- Knowledge of bottle banks, attitudes towards recycling/reasons for non-participation, impact of publicity/promotional efforts, details of respondents.

We have already highlighted the wide variation in response between different Local Authority Districts. It is thus important that our study should include areas with high, average and low recycling rates so that comparisons can be made between them. It is also conceivable that public attitudes towards recycling could be affected by settlement pattern. It was therefore decided to investigate rural areas (e.g. North-East Fife), urban areas (e.g. Falkirk) and city areas (e.g. Glasgow). It was decided that the following Districts should be studied (Table 2).

TABLE 2
Districts incorporated in study

| Recycling performance | City | Settlement pattern | |
|-----------------------|-----------|--------------------|-----------------|
| | | Urban | Rural |
| High | Aberdeen | Falkirk | North East Fife |
| Average | Edinburgh | East Kilbride | Kyle & Carrick |
| Low | Glasgow | Cumbernauld | Perth & Kinross |

4. The survey

The initial questionnaires were modified in the light of responses obtained from a pilot study in the Stirling area. The location of the bottle banks investigated are shown in Table 2, along with the dates at which the survey took place. In each district at least two bottle banks were selected to try to make the sample chosen representative. Interviews were usually also held on two different days in each district. Since at the time of year the study was undertaken it was dark in the evenings, interviews took place throughout the daylight hours (it is possible that this could result in a slight bias towards more elderly people in the sample).

Recyclers were chosen by approaching people seen using the bottle banks. In many areas where the response is quite slow, then a 100% sample could be taken. Otherwise, participants were chosen on a random basis. Non-respondents were chosen by randomly selecting individuals in the same areas as the banks who admitted that they did not participate in recycling schemes. Most of the bottle banks were in supermarket car parks and in the initial stage of the survey there were on occasion problems with the supermarket management. Communication from the glass manufacturers, however, finally resolved this problem.

The study also gave considerable insight into the general condition of bottle bank sites and to what extent this enhanced (or otherwise) the prospects of success for the glass recycling operations. Brief comments on site conditions are also included in Table 3.

In the whole survey 143 interviews with users and 132 interviews with non-users were undertaken.

TABLE 3
Sites chosen and dates of interviews

| Site | Local authority district and location | Comments | Date of Interviews |
|-------|---------------------------------------|---|--|
| 1. | Falkirk District | | |
| (i) | York Place, Grangemouth | Distant from shops, poor visibility | Thursday 5th Nov and Saturday 7th Nov |
| (ii) | Fine Fare, Falkirk† | Skip vandalized and overflowing | |
| (iii) | Larbert | Good location but overflowing skip | |
| 2. | Cumbernauld & Kilsyth District | | |
| (i) | William Low car park† | Well situated but purpose unclear | Wednesday 11th Nov and Thursday 12th Nov |
| (ii) | Cumbernauld town centre | | |
| 3. | Edinburgh District | | |
| (i) | Bughlton market | Convenient | Tuesday 17th Nov and Thursday 18th |
| (ii) | George Square | Posters and slogans on bank clarified purpose | |
| (iii) | Westerhailes | Inconvenient position in car park | |
| 4. | Kyle & Carrick District | | |
| (i) | William Low, Ayr† | Poor visibility | Wednesday 25th Nov and Thursday 26th Nov |
| (ii) | Tesco, Ayr† | Skip old, rusty and unattractive | |
| (iii) | Fine Fare, Prestwick† | Little use observed | |
| (iv) | Presto car park, Troont | Good visibility | |
| 5. | East Kilbride District | | |
| (i) | St Leonards Square | Popular, convenient site | Friday 27th Nov and Saturday 28th Nov |
| (ii) | Parkland Street | Rusty skip, dirty surroundings | |
| (iii) | Plaza, town centre | Good visibility, parking problems | |
| 6. | Glasgow District | | |
| (i) | Safeway car park.† Shawlands | Littered surroundings | Tuesday 1st Dec and Wednesday 2nd Dec |
| (ii) | Maxwell Drive | Convenient, on pavement | |
| 7. | Perth District | | |
| (i) | Gateway, Crieff† | Convenient location | Saturday 5th Dec and Monday 7th Dec |
| (ii) | Tesco car park, Perth† | Inconvenient location in out-of-town park | |
| 8. | Aberdeen District | | |
| (i) | Bridge of Dee | Convenient, attractive environment | Wednesday 9th Dec |
| (ii) | Norco Beryden | Attractive environment | |
| 9. | North East Fife District | | |
| (i) | St Andrews | Created high public interest | Monday 14th Dec and Tuesday 15th Dec |
| (ii) | Cupar | Poor situation in car park with poor surface | |

† Supermarket locations.

5. Results

Data was collated using the Survey Analysis facility of the MINITAB computer package. Statistical testing was done using the non-parametric statistical tests facility of STATGRAPHICS on a PC.

5.1 Bottle bank users

Before attempting to identify differences between groups of users it was decided to aggregate all the questionnaires to see if any general conclusions could be identified. Full results of the questionnaire are presented in Appendix 1. The most important general results are as follows:

5.1.1 Attitudes towards recycling

Only around 30% of respondents are involved in recycling other materials which in all but one case was waste paper. The most common reason for using bottle banks is a desire to reduce the amount of waste in rubbish bin (39%). However, almost the same proportion (34%) cited a wish to conserve resources as their main motivation. Only 2% gave job creation potential as their main reason.

5.1.2 Trip type, frequency and transportation

The vast majority of respondents use bottle banks on shopping trips. Only 2-3% use them on their way to work or to recreational activity. Around 9% make a special trip to the bottle bank. About one third of the respondents involve other members of the family (spouses or children) in taking bottles to the bank. The most common means of transport to the bottle bank is by car (71%). Around (27%) come by foot. A negligible proportion come by other modes of transport.

Most respondents (52%) make trips to the bottle banks on a once or twice monthly basis. A substantial number (27%) make weekly visits while significant numbers fall into the category of making more than once a week trips or less than one per month. Around 20% of respondents claimed they used other bottle banks, but trip pattern and mode of transport used are very similar to before.

The vast majority of those interviewed found that bottle banks were conveniently located (92%). Clearly we should treat this result with some caution as those finding the sites inconvenient may not use them and thus not appear in our sample. The small number who found it inconvenient quoted, excessive crowding of car park, too much broken glass and distance from residence. Only 9% of those interviewed were able to think of a better location.

5.1.3 Knowledge of bottle banks

Around 80% realized that bottle banks could be used for other glass receptacles e.g. jam jars, coffee jars. Virtually all respondents brought glass bottles and the majority also brought other glass receptacles. About 80% of respondents separated coloured and clear glass. There was a wide variation in the number of glass containers brought to the bank: 70% brought six or fewer per trip. Most respondents had a reasonable knowledge of who operates the glass recycling scheme and who benefits. Around three-quarters believed that the schemes made money. The majority of those who believed this felt that any receipts should be used to reduce rating demands (i.e. property and municipal taxes), although a significant minority believed that the money should be donated to charity.

5.1.4 Impact of publicity/promotional efforts

The answers to the questions associated with promotion of glass recycling indicate general perceptions of inadequate performance. Seventy percent of respondents felt that promotion/advertising was inadequate. The most frequent suggestion for further promotion was newspaper advertising and posters.

All promotional activity mentioned seem to have made minimal impact and the vast majority (78%) of those interviewed first learned of glass recycling schemes when they saw a bottle bank. It was surprising that even though the survey took place during European Year of the Environment, not a single respondent had heard about this event.

5.1.5 Details of respondents

The respondents themselves consisted of an about even number of males and females. There seemed however to be a disproportionately high proportion of retired people (around 40%) and of the upper socio-economic classes.

5.2 Non-users questionnaire

The replies of all non-users were aggregated and detailed results are given in Appendix 2. The main results are as follows:

5.2.1 Knowledge of bottle banks

Most people (88%) knew what a bottle bank was. The majority (61%) learned about them by seeing them. Only a very small proportion (4%) had heard of them through publicity campaigns. This was statistically significantly lower than for users (at 0.001 sig. level). Only 50% knew of the location of the nearest bank and 25% knew of the location of other banks. Again this was statistically significantly lower than is the case for users (at 0.001 sig. level). Only 20% realized that bottle banks were for other glass receptacles as well as bottles. (Highly significantly different than for users).

Again there was reasonable awareness of the bodies responsible for operating schemes.

5.2.2 Reasons for non-participation

Around 15% quote inconvenient location as the reason for non-participation. The major reasons for non-participation are, however, either lack of interest in recycling or an unwillingness to make the effort (together 60% of respondents). Around 30% said they might be prepared to use the bank if it was situated in a different place. This answer, however, seems to be contradicted by the answer to a subsequent question on factors that might encourage participation. Here only 8% suggested a different location and 70% said that there was nothing that could be done. About 9% felt that more publicity might encourage participation. As perhaps might have been expected there was a low proportion involved in recycling other materials (11%) – again virtually all involved in waste paper recycling. (Statistical testing revealed this difference to be highly significantly different from users at 0.001 significance level on χ^2 test.)

5.2.3 Impact of publicity/promotional efforts

Promotional schemes had made even less impact with this group than the users. The only positive response was a single respondent who had heard of the "Ali Jamjar" scheme. This difference was statistically highly significant (0.001 level).

5.2.4 Details of respondents

Respondents were again evenly divided between males and females. Generally this was a much younger group with over half in the 16-34 age group and a much smaller proportion of retired people (23%). This group also seemed to contain a higher proportion of individuals from lower socio-economic classes, statistical testing showed both the above propositions to be highly significant (at 0.001 level).

5.3 Differences between high, average and low recycling areas

Statistical tests were carried out (using χ^2 distribution) to discover whether there were significant different responses between respondents from high, average or low recycling areas on a number of topics. These included mode of travel, frequency of visit, knowledge of other sites, type and number of glass receptacles brought, opinions of advertising and impact of publicity campaigns.

In none of these cases was a statistically significant result obtained. Nor were there significant differences in composition of recyclers between different socio-economic classes in different areas.

5.4 Difference between urban, city and rural areas

Responses were then divided into urban, city and rural areas and a similar series of statistical tests to those described above were carried out. The results showed a not surprising tendency for rural users to be more likely to visit a bottle bank by car than by foot, although the significance level of this result (0.13) is only moderate. It is also not surprising that rural users tend to visit bottle banks less often (sig. level 0.03) and take rather more glass receptacles (sig. level 0.06). There were no significant differences recorded on other responses including the impact of publicity campaigns.

6. Conclusions and recommendations

6.1 Conclusions

- (1) Users of bottle banks appear to be predominantly motivated by a desire to reduce the amount of rubbish in their bin and a desire to conserve resources. Job creation potential of recycling programmes appear not to have made the same impact.
- (2) Publicity and promotional campaigns in support of glass recycling have made little impact. This impact has however been significantly less among the non-users than the users.
- (3) The only other recycling actively undertaken by (a minority) of the respondents is that of waste paper recycling. This activity is undertaken significantly less by non-users than users.
- (4) Respondents on the whole seemed quite satisfied by the location of bottle banks. Some non-users stated that they might be more inclined to participate if the bank was relocated but this response was partly contradicted by answers to other questions. A caveat is necessary here, however; potential users who find current sites inconvenient may not appear in these areas and hence do not get included in either the users or non-user category.
- (5) The vast majority of users visit the bottle bank on shopping trips and the usual form of transportation is by car.

- (6) The major reasons for non-participation appears to be lack of motivation and lack of interest in recycling.
- (7) The vast majority of users realize that bottle banks are used for all glass receptacles and they also separate coloured and plain glass.
- (8) A large proportion of those who believed that the scheme made a surplus felt that this should be used to reduce the local tax burden, although a substantial minority felt that the proceeds should be donated to charity.
- (9) Non-users tend to be younger and from lower socio-economic groups than users.
- (10) No statistically significant responses were recorded between High, Average and Low recycling areas. No significant difference in effectiveness of publicity campaigns were recorded so this does not seem to be a factor in response rate.
- (11) Little difference was recorded between city, urban or rural areas. It was not unexpected to find that rural users tended to make more journeys by car, make trips less frequently but carrying a higher volume of glass.

6.2 Recommendations

- (1) There is little evidence to suggest that a greater response rate might be obtained by relocating the current bottle banks. When taking decisions on the siting of future bottle banks the commercial operator, United Glass, should bear in mind that visits to the bottle banks are generally associated with shopping trips and that the usual mode of transportation is car.
- (2) The survey revealed that some of the bottle banks and sites were not maintained properly. United Glass and Local Authorities should make every effort to maintain tidy and effective sites.
- (3) Consideration should be given by local authorities to whether a part of any surplus should be donated to charity in line with the wishes of a substantial minority of respondents.
- (4) The glass manufacturers should review their publicity campaign both in the light of the results reported here and the psychological insights of Kuylen and Van Raaj and Sheth reported earlier. It is clear that past publicity campaigns have had little effect both with recyclers and non-recyclers. Thus one question that the glass manufacturers need to take up is why their promotional campaigns have made so little impact.

Future campaigns should be targeted to have more impact and should have the objective of both reinforcing and maintaining the behaviour of those who do not take part in recycling. Reinforcing the behaviour of those who already recycle is to some extent already undertaken by glass manufacturers through newsletters, awards for districts with high collection rates and publicity in the local press. It is clear from the results of this study, however, that such activities need to make much more impact with the public.

The study found that non-recyclers tended to be younger and from lower socio-economic classes. This publicity should be particularly targeted at these groups. One of the most important reasons for not recycling was that respondents could not be bothered. Thus, when these groups are targetted, stress should be placed on the simplicity of use and easy access of recycling containers. To overcome some of the difficulties associated with lack of motivation, stress should be placed on the effectiveness of each individual contribution towards preserving the environment.

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Appendix 1: Results of Questionnaire for all 143 users

User's questionnaire

| | | Number | Percentage |
|--|--|-------------|------------|
| (1) | Are you involved in recycling other materials? | Yes | 44 |
| | | No | 99 |
| | | 143 | 69.2 |
| (1a) Type of materials: | | | |
| | | Waste paper | Aluminium |
| | Yes | 42 (29.4%) | 0 |
| | No | 101 (70.6%) | 143 (100%) |
| | | | Plastics |
| | | | 143 (100%) |
| | | | Other |
| | | | 2 (1.4%) |
| (2) Reasons why people use bottle banks: (number of first choices) | | | |
| | | Number | Percentage |
| (a) | Less rubbish in bin | 55 | 38.5 |
| (b) | Wish to conserve resources | 49 | 34.3 |
| (c) | Keeps rates down | 23 | 16.1 |
| (d) | Create jobs | 3 | 2.1 |
| (e) | Others | 13 | 9.1 |
| | | 143 | |
| (3) When do you use this particular bank? | | | |
| | | Number | Percentage |
| (a) | On way to shops | 122 | 85.3 |
| (b) | On way to work | 5 | 3.5 |
| (c) | On way to recreation | 3 | 2.1 |
| (d) | Make a special trip | 13 | 9.1 |
| | | 143 | |

| | | | |
|------|---|---------------|-------------------|
| (4) | Do other members of your family use bottle banks? | <u>Number</u> | <u>Percentage</u> |
| | Yes | 53 | 37.1 |
| | No | 90 | 62.9 |
| | | <u>143</u> | |
| (4a) | Who? | <u>Number</u> | <u>Percentage</u> |
| | Husband | 12 | 8.4 |
| | Wife | 28 | 19.6 |
| | Child | 19 | 13.3 |
| | Other | 10 | 7.0 |
| | | <u>69</u> | |
| (5) | Transport to bank: | <u>Number</u> | <u>Percentage</u> |
| | Car | 102 | 71.3 |
| | Foot | 39 | 27.3 |
| | Bus | 1 | 0.7 |
| | Train | 0 | 0 |
| | Other | 1 | 0.7 |
| | | <u>143</u> | |
| (6) | How often do you use bank? | <u>Number</u> | <u>Percentage</u> |
| | More than once a week | 12 | 8.4 |
| | Once a week | 39 | 27.3 |
| | Once/twice a month | 74 | 51.8 |
| | Once every 2/3 months | 14 | 9.8 |
| | 2/3 times a year | 4 | 2.8 |
| | About once a year | 0 | 0 |
| | | <u>143</u> | |
| (7) | Do you use other banks? | <u>Number</u> | <u>Percentage</u> |
| | Yes | 28 | 19.6 |
| | No | 115 | 80.4 |
| | | <u>143</u> | |
| (8) | When do you use these other banks? | <u>Number</u> | <u>Percentage</u> |
| | Don't use other banks | 115 | 80.4 |
| | On way to shops | 22 | 15.4 |
| | On way to work | 0 | 0 |
| | On way to recreation | 1 | 0.7 |
| | Make a special trip | 5 | 3.5 |
| | | <u>143</u> | |
| (9) | How do you deliver to them? | <u>Number</u> | <u>Percentage</u> |
| | Don't deliver | 115 | 80.4 |
| | By car | 27 | 18.9 |
| | On foot | 1 | 0.7 |
| | By bus | 0 | 0 |
| | By train | 0 | 0 |
| | | <u>143</u> | |

(10) Convenience of bottle bank:

| | Number | Percentage |
|-----|--------|------------|
| Yes | 132 | 92.3 |
| No | 11 | 7.7 |
| | 143 | |

Those who said 'no'—11 people
reasons:

| | |
|-----------------------|----|
| Car park too crowded | 4 |
| Too much broken glass | 2 |
| Too far from houses | 2 |
| Other | 3 |
| | 11 |

(11) Can you think of a better location?

| | Yes | No |
|--|-----------|-------------|
| | 13 (9.1%) | 130 (90.9%) |

Those who said 'yes'—13 people
where:

| | |
|-----------------------------|----|
| Different part of same site | 8 |
| Other car park | 2 |
| Other street | 3 |
| | 13 |

(12) Knowledge of other sites:

| | Number | Percentage |
|-----|--------|------------|
| Yes | 65 | 45.5 |
| No | 78 | 54.5 |
| | 143 | |

Would you use them?

| | Yes | No |
|--------|---------------|----------------|
| SITE 1 | 31 (21.7%) | 112 (78.3%) |
| SITE 2 | 1 (0.7%) | 142 (99.3%) |

(13) What kind of trip?

Many non-responses but vast
majority cited shopping trip

(14) Type of glass containers:

| | Number | Percentage |
|---------------|--------|------------|
| Bottles | 141 | 98.6 |
| Jam jars | 76 | 53.2 |
| Coffee jars | 99 | 69.2 |
| Sauce bottles | 83 | 58.0 |

(15) Did you know bottle banks were for other glass receptacles?

| | Number | Percentage |
|-----|--------|------------|
| Yes | 114 | 79.7 |
| No | 29 | 20.3 |
| | 143 | |

(16) Do you separate out the colours?

| | Number | Percentage |
|-----|--------|------------|
| Yes | 115 | 80.4 |
| No | 28 | 19.6 |
| | 143 | |

(17) How many containers do you bring?

| | Number | Percentage |
|----|------------|------------|
| 1 | 5 | 3.5 |
| 2 | 23 | 16.1 |
| 3 | 25 | 17.5 |
| 4 | 20 | 14.0 |
| 5 | 14 | 9.8 |
| 6 | 18 | 12.6 |
| 7 | 1 | 0.7 |
| 8 | 11 | 7.7 |
| 9 | 1 | 0.7 |
| 10 | 9 | 6.3 |
| 12 | 5 | 3.5 |
| 15 | 1 | 0.7 |
| 20 | 5 | 3.5 |
| 24 | 1 | 0.7 |
| 25 | 1 | 0.7 |
| 30 | 1 | 0.7 |
| 50 | 2 | 1.4 |
| | <u>143</u> | |

(18) Who do you think operates the scheme?

| | Number | Percentage |
|------------------------|------------|------------|
| Council | 80 | 55.9 |
| Glass ind. | 10 | 7.0 |
| Private co. | 2 | 1.4 |
| Council and glass ind. | 20 | 14.0 |
| Don't know | 31 | 21.7 |
| | <u>143</u> | |

(19) Who benefits?

| | Number | Percentage |
|----------------------|------------|------------|
| Council | 66 | 46.2 |
| Glass ind. | 25 | 17.5 |
| Private co. | 2 | 1.4 |
| Council + glass ind. | 29 | 20.3 |
| Don't know | 21 | 14.7 |
| | <u>143</u> | |

(20) Schemes make money?

| | Number | Percentage |
|------------|------------|------------|
| Yes | 110 | 76.9 |
| No | 10 | 7.0 |
| Don't know | 23 | 16.1 |
| | <u>143</u> | |

(21) Where should money go?

| | Number | Percentage |
|------------------------|------------|------------|
| Rates (property taxes) | 62 | 43.4 |
| Charity | 24 | 16.8 |
| Glass manufacture | 7 | 4.9 |
| Other | 5 | 3.5 |
| Rates & charity | 5 | 3.5 |
| Rates & glass | 5 | 3.5 |
| Rates & social | 3 | 2.1 |
| | <u>110</u> | |

| | | | | | |
|--|----------------------------------|----------------|---------|------------|------------|
| (22) Enough advertising? | | Number | | Percentage | |
| | Yes | 42 | | 29.4 | |
| | No | 101 | | 70.6 | |
| | | 143 | | | |
| (23a) Any suggestions? | | Number | | Percentage | |
| | Yes | 71 | | 49.7 | |
| | No | 72 | | 50.3 | |
| | | 143 | | | |
| (b) If yes: | | | | | |
| | Newspaper adverts | 22 | | 15.4 | |
| | TV adverts | 3 | | 2.1 | |
| | Posters | 15 | | 10.5 | |
| | Leaflets | 6 | | 4.2 | |
| | Labels | 5 | | 3.5 | |
| | General information | 5 | | 3.5 | |
| | More banks | 9 | | 6.3 | |
| | Signposts | 5 | | 3.5 | |
| | Tidiness | 1 | | 0.7 | |
| | | 71 | | 49.7 | |
| (24) Heard of: | | Number | | Percentage | |
| | | Yes | No | Yes | |
| | European Year of the Environment | 0 | 143 | 0 | |
| | "Ali jamjar" campaign | 1 | 142 | 0.7 | |
| | "Message in the bottle" campaign | 12 | 131 | 8.4 | |
| | "Bonanza" campaign | 0 | 143 | 0 | |
| (25) How did you learn of bottle banks | | Number | | Percentage | |
| | Relative/friend | 15 | | 10.5 | |
| | Publicity campaign | 16 | | 11.2 | |
| | Saw bottle bank | 111 | | 77.6 | |
| | Other | 1 | | 0.7 | |
| | | 143 | | | |
| Respondents | | Socio-Economic | | | |
| | Number | Percentage | Class | Number | Percentage |
| Males: | 71 | 49.7 | Retired | 60 | 42.0 |
| Females: | 72 | 50.3 | 1 | 11 | 7.7 |
| Age | | | 2 | 34 | 23.8 |
| 16 | 1 | 0.7 | 3 | 22 | 15.4 |
| 16-34 | 13 | 9.1 | 4 | 7 | 5.0 |
| 34-54 | 54 | 37.8 | 5 | 9 | 6.3 |
| 55+ | 75 | 52.5 | | | |
| | 143 | | | 143 | |

Appendix 2:

Non-users questionnaire results

| | | | | | |
|--|-----|--------|--|------------|--|
| (1) Do you know what a bottle bank is? | | Number | | Percentage | |
| | Yes | 116 | | 87.9 | |
| | No | 16 | | 12.1 | |
| | | 132 | | | |

| | | | | |
|-----|---|--------------------------|---------------|-------------------|
| (2) | How did you learn about them? | | <u>Number</u> | <u>Percentage</u> |
| | | Relative/friend | 31 | 23.5 |
| | | Publicity campaign | 5 | 4.8 |
| | | Saw bottle bank | 81 | 61.4 |
| | | Other | 0 | 0 |
| | | Don't know about them | 15 | 11.4 |
| | | | 132 | |
| (3) | Know location of nearest bank? | | <u>Number</u> | <u>Percentage</u> |
| | | Yes | 70 | 53.0 |
| | | No | 62 | 47.0 |
| | | | 132 | |
| (4) | Of other bottle banks? | | <u>Number</u> | <u>Percentage</u> |
| | | Yes | 34 | 25.8 |
| | | No | 98 | 74.2 |
| | | | 132 | |
| | | | | |
| (5) | Did you know bottle banks were for glass receptacles? | | <u>Number</u> | <u>Percentage</u> |
| | | Yes | 27 | 20.5 |
| | | No | 105 | 79.5 |
| | | | 132 | |
| (6) | Reasons for non-use: | | <u>Number</u> | <u>Percentage</u> |
| | | Inconvenient location | 20 | 15.2 |
| | | Can't be bothered | 49 | 37.1 |
| | | No interest in recycling | 32 | 24.2 |
| | | Other | 31 | 23.5 |
| | | | 132 | |
| (7) | Use bottle bank if in a different place: | | <u>Number</u> | <u>Percentage</u> |
| | | Yes | 42 | 31.8 |
| | | No | 83 | 62.9 |
| | | Don't know | 7 | 5.3 |
| | | | 132 | |
| (8) | Factors to encourage use: | | <u>Number</u> | <u>Percentage</u> |
| | | More publicity | 12 | 9.1 |
| | | Benefits known | 5 | 3.8 |
| | | Financial reward | 8 | 6.1 |
| | | Different location | 11 | 8.3 |
| | | None | 92 | 69.7 |
| | | Don't know | 2 | 1.5 |
| | | More banks | 2 | 1.5 |
| | | | 132 | |
| (9) | Who operates scheme? | | <u>Number</u> | <u>Percentage</u> |
| | | Council | 55 | 41.7 |
| | | Glass ind. | 26 | 19.7 |
| | | Private co. | 1 | 0.8 |
| | | Council & glass ind. | 19 | 14.4 |
| | | Council & private co. | 0 | 0 |
| | | Don't know | 30 | 22.7 |
| | | Other | 1 | 0.8 |
| | | | 132 | |

(10) Who benefits?

| | Number | Percentage |
|-----------------------|--------|------------|
| Council | 38 | 28.8 |
| Glass ind. | 42 | 31.8 |
| Private co. | 2 | 1.5 |
| Council & glass ind. | 24 | 18.2 |
| Council & private co. | 0 | 0 |
| Don't know | 25 | 18.9 |
| OTHER | 1 | 0.8 |
| | 132 | |

(11) Do you think the schemes make money?

| | Number | Percentage |
|------------|--------|------------|
| Yes | 103 | 78.0 |
| No | 23 | 17.4 |
| Don't know | 6 | 4.5 |
| | 132 | |

(12) If yes, where should the money go?

| | Number | Percentage |
|------------------------|--------|------------|
| Rates (property taxes) | 43 | 32.6 |
| Charity | 44 | 33.3 |
| Glass manufacturer | 15 | 11.4 |
| Other | - | - |
| Rates & charity | 1 | 0.8 |
| Rates & glass | 2 | 1.5 |
| | 105 | |

(13) Heard of?

| | Number | Percentage |
|----------------------------------|--------|------------|
| European year of the Environment | 0 | 0 |
| "Ali jamjar" campaign | 1 | 0.8 |
| "Message in the bottle" campaign | 0 | 0 |
| "Bonanza" campaign | 0 | 0 |

(14) Involved in recycling any other materials?

| | Number | Percentage |
|-----|--------|------------|
| Yes | 17 | 12.9 |
| No | 115 | 87.1 |
| | 132 | |

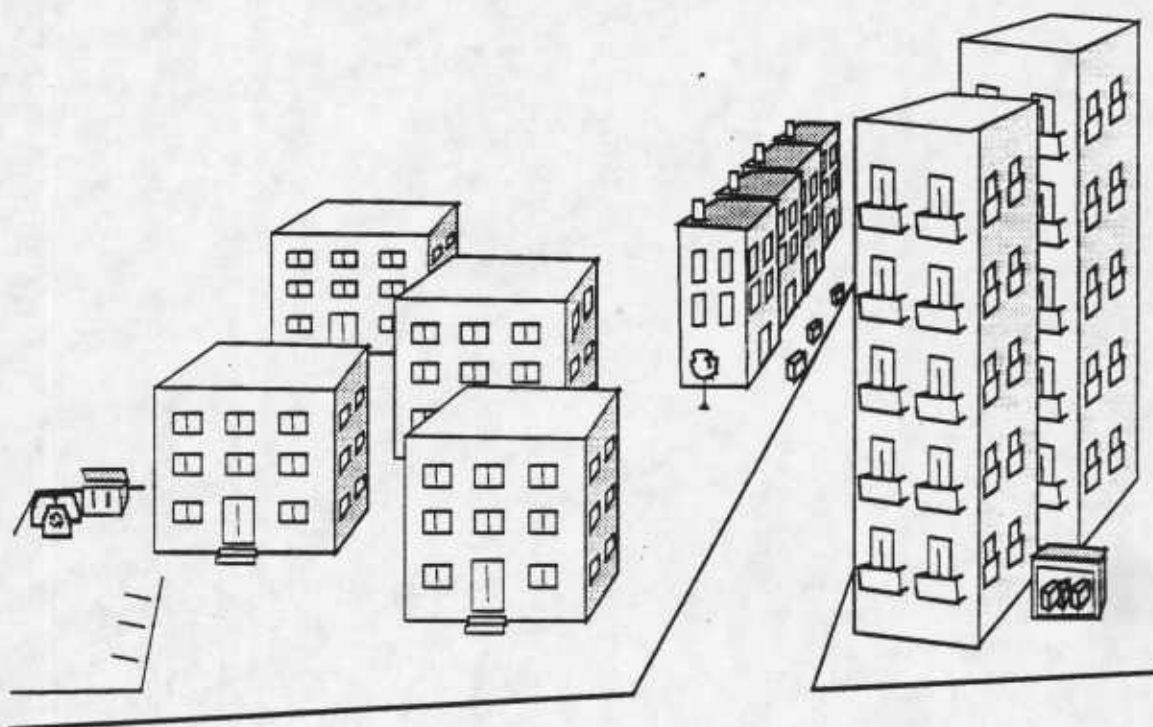
(15) If yes:

| | Number |
|------------|--------|
| Wastepaper | 15 |
| Aluminium | 1 |
| Plastics | 1 |
| Other | 0 |

Respondents

| | Number | Percentage | Socio-Economic Class | Number | Percentage |
|-------------------|--------|------------|----------------------|--------|------------|
| Number of males | 64 | 48.5 | Retired: | 31 | 23.5 |
| Number of females | 68 | 51.5 | | 8 | 6.1 |
| | 132 | | | 29 | 22.0 |
| Age | | | | 4 | 18.9 |
| 16 | 1 | 0.8 | | 5 | 6.1 |
| 16-34 | 56 | 42.4 | | 31 | 23.5 |
| 35-54 | 36 | 27.3 | | 132 | |
| 55+ | 39 | 29.6 | | | |
| | 132 | | | | |

MULTIFAMILY DWELLING RECYCLING MANUAL



Prepared By

*Prince George's County Office of Recycling and
Northern Virginia Planning District Commission*

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MULTIFAMILY DWELLING RECYCLING MANUAL

Multifamily buildings are home to large portions of the County's population. This manual is designed to help apartment property managers, owners, and residents develop successful recycling programs in their multifamily buildings.

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Office of Recycling**
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This technical investigation was carried out by the NVPDC staff under contract to the Virginia Department of Mines, Minerals and Energy with assistance from *HDR Engineering Inc.*, and the *Environmental Action Coalition*. Any assessments and conclusions contained in this report represent the results of the staff's technical investigation and do not represent policy positions of the Northern Virginia Planning District Commission unless so stated in an adopted Resolution of said Commission.

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HELPFUL HINTS

- **Be flexible** in your approach to recycling in your building.
- **Educate** yourself and building residents before and during the life of your recycling program.
- **Design** a recycling program that "fits" your building, and is convenient for building staff, residents and service providers.
- **Arrange** with trash hauler for collection of recyclables.
- **Think** through and prepare for each step of your recycling program.
- **Communicate** responsibilities of building staff, residents and service providers in your recycling program.
- **Start** recycling today to gain experience before it becomes mandatory.
- **Remember** that the County Office of Recycling is a resource for you to work with in developing your program.

I. INTRODUCTION

Recycling is not a new idea. Generations of "rag men" and scrap yard owners have prospered from the economic value of discarded items. During WWII, U.S. citizens mobilized around recycling. Today, recycling has taken on a new importance to the environment and the economy.

Why Should We Recycle?

"We produce too much trash"America generates more garbage than any other country in the world—approximately four pounds per person per day. Americans throw away enough aluminum to rebuild the U.S. commercial airfleet every three months.

"We've come to the end of cheap disposal"With increasing amounts of garbage and less space to put it, the economic and environmental costs of burying garbage is skyrocketing.

"We need to conserve our resources"Recycling conserves valuable finite resources, including energy use in manufacturing.

"Recycling helps our economy"By recycling materials, the U.S. trade deficit can be reduced—the U.S. is one of the leading exporters of waste paper, yet it is also a world leader in importing new paper.

"Recycling creates new jobs"For every 10,000 tons recycled, 32 new jobs are created.

"We live in a polluted world"More and more types of pollution enter our ecosystem everyday. Recycling reduces pollution from aluminum manufacturing by 90-95%, and from paper production by 70-75%..

"It's becoming law"In many states and communities across the country, recycling has been made mandatory. Many mandatory laws also include apartment and multifamily buildings.

State and County Law

The State of Maryland has mandated local governments to recycle 20% of their refuse. Prince George's County has committed to an even higher recycling rate of 35%. It would be impossible to attain this ambitious goal without including apartments which comprise 40% of the County's households. Therefore, the County's recycling legislation requires apartment owners and managers to provide recycling opportunities to their residents by July 1, 1992. Under the County law an apartment is defined as a "multi-family rental facility" or "building operated as a single entity in which the landlord provides, for a consideration, three (3) or more rental dwelling units." For condominiums and cooperatives, the County will provide recyclables collection.

II. MULTIFAMILY BUILDING RECYCLING CHECKLIST

Follow Steps 1-8 and you will be on your way to discovering the many benefits of recycling in multifamily buildings.

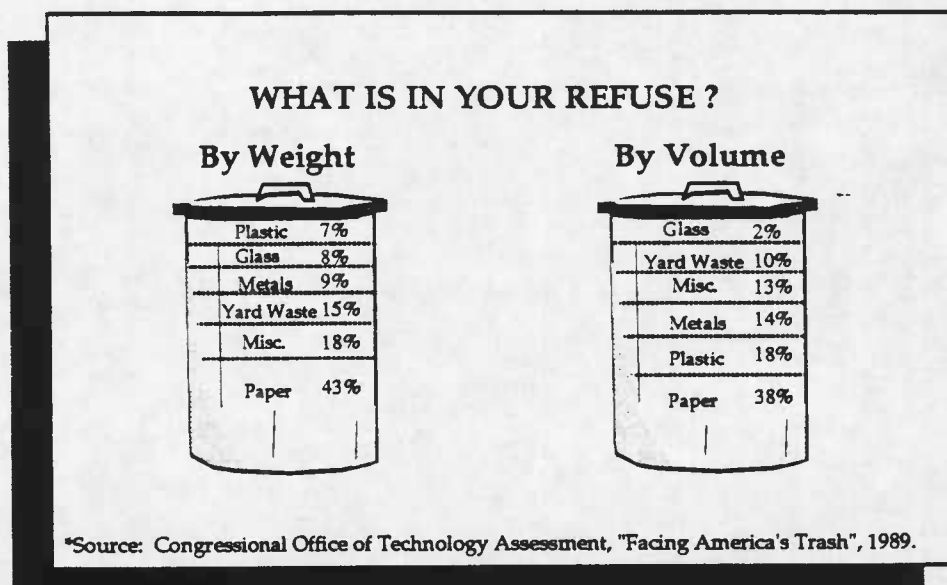
- | | |
|--------|---------------------------------------|
| STEP 1 | KNOW YOUR REFUSE |
| STEP 2 | UNDERSTAND YOUR DISPOSAL SYSTEM |
| STEP 3 | EVALUATE YOUR RECYCLING POTENTIAL |
| STEP 4 | IDENTIFY AVAILABLE RECYCLING SERVICES |
| STEP 5 | DESIGN YOUR RECYCLING PROGRAM |
| STEP 6 | SIGN CONTRACTS AND PURCHASE EQUIPMENT |
| STEP 7 | EDUCATE, EDUCATE, EDUCATE |
| STEP 8 | IMPLEMENT YOUR RECYCLING PROGRAM |

STEP 1 KNOW YOUR REFUSE

For years, refuse collection and disposal costs were too low to make much of a difference in business practices. But times are changing. To control costs, property management companies are re-examining their current refuse collection and disposal practices. The following charts will help you develop a clearer picture of the volume, weight and composition of your property's refuse.

| Weekly Disposal Weight Calculation | | | |
|--|---|--|---|
| Number of units in building <div style="border: 1px solid black; width: 80px; height: 40px; margin: 0 auto;"></div> | X | Average Per unit weekly weight (lbs.) <div style="border: 1px solid black; width: 80px; height: 40px; display: flex; align-items: center; justify-content: center;"> 52 * </div> | = <div style="border: 1px solid black; width: 150px; height: 60px; margin: 0 auto;"></div> |
| <div style="display: flex; justify-content: space-between;"> <div>Weekly Disposal Weight (lbs.)</div> </div> | | | |
| Weekly Disposal Volume Calculation | | | |
| Number of units in building <div style="border: 1px solid black; width: 80px; height: 40px; margin: 0 auto;"></div> | X | Average Per unit weekly volume (cubic yards) <div style="border: 1px solid black; width: 80px; height: 40px; display: flex; align-items: center; justify-content: center;"> .24 * </div> | = <div style="border: 1px solid black; width: 150px; height: 60px; margin: 0 auto;"></div> |
| <div style="display: flex; justify-content: space-between;"> <div>Weekly Disposal Volume (cubic yards)</div> </div> | | | |
| <small>*Per unit averages based on High-Rise and Multifamily Recycling Feasibility Study.</small> | | | |

In addition to estimating how much your refuse weighs, and how much space it fills on a weekly basis, it is often helpful to understand the composition of your refuse. The following figure illustrates average refuse compositions from around the country.



STEP 2 UNDERSTAND YOUR DISPOSAL SYSTEM

Understanding your current refuse collection system is important to the design of your recycling program. Disposal systems provide a basis for evaluating your recycling options. Generally, recycling programs that parallel existing disposal practices are most successful.

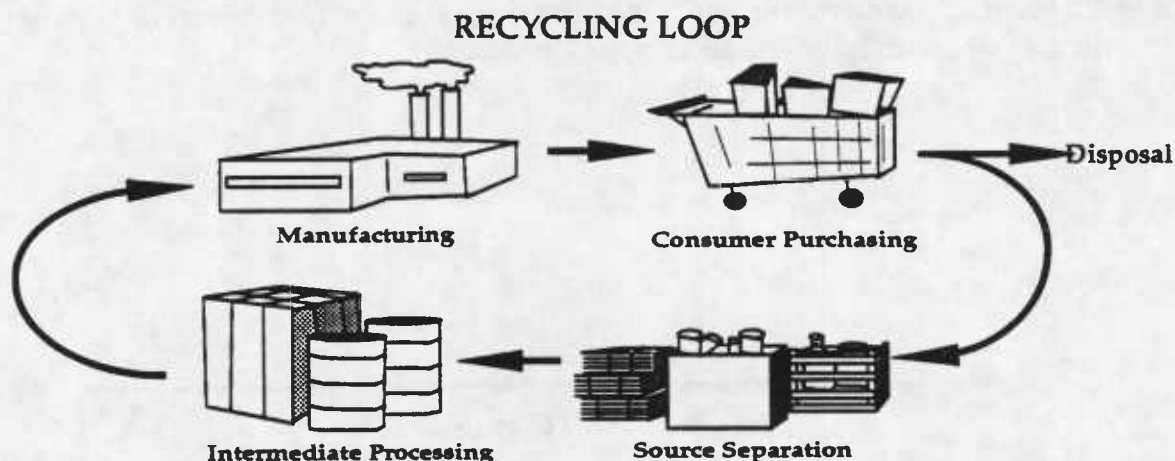
In addition to identifying the design of your refuse collection and disposal systems, it is helpful to understand how your system operates. The responsibilities of residents, building staff, and your refuse hauler in your existing disposal system are important factors to consider when designing your recycling program.

POINTS TO PONDER

- *Are some materials currently kept separate from your refuse (i.e., bottles, newspaper, cardboard, bulk trash)?*
- *Are any materials currently being recycled?*
- *How many building staff are responsible for refuse disposal?*
- *How much time does staff spend on disposal duties?*
- *Do you have any resident volunteers for recycling?*
- *Is there adequate space for disposal needs?*
- *Is there additional space available for recycling?*
- *Are your indoor disposal areas fire protected?*
- *What refuse equipment does your building staff use?*
- *How often is refuse picked up?*
- *How are you billed for refuse collection (per pickup or ton)?*

STEP 3 EVALUATE YOUR RECYCLING POTENTIAL

The key to evaluating your recycling potential is understanding that recyclables are commodities that are bought and sold. Buyers have specific quantity and quality standards for purchasing recyclables which they use to produce new products. This is why recyclables need to be kept contaminant free. The chart on page 11 will explain how materials need to be prepared. As a potential source of recyclables, you need to keep in mind the markets' needs and the role you play in completing the "recycling loop."



The principle refuse materials that are bought and sold for recycling include: newspaper, cardboard, glass, aluminum, steel and plastic.

The following table will help you estimate the amount of recyclables you can expect to generate weekly. First, in the "Number of Units" column, write the number of units in your building(s). Second, multiply your number of units by the average multifamily unit weekly recycling rate (in pounds). And third, record your figures in the column labeled "Your Recycling Estimates". For example, if you have 100 units, you could expect 330 pounds (3.3×100) of newspaper a week.

| ESTIMATING YOUR RECYCLING POTENTIAL | | | | | |
|-------------------------------------|--------------------------------------|---|-----------------|---|--------------------------------------|
| Recycables | Recycling Averages/Unit Pounds/Week* | | Number of Units | | Your Recycling Estimates Pounds/Week |
| Newspaper | 3.3 | x | | = | |
| Aluminum | .1 | x | | = | |
| Glass | .9 | x | | = | |
| Plastics | .2 | x | | = | |
| Tin | .2 | x | | = | |
| TOTAL | 4.7 | x | | = | |

*These generation rates are based on our experience with fifteen properties in the County who participated in a pilot recycling program.

Why Should I Care How Much My Building Can Recycle?

First*your estimates of potential weekly weights are useful in determining your recycling program's equipment and storage space needs;*

Second*estimating your potential weekly weights is helpful in negotiating contracts with collectors of recyclables; and*

Third*these figures will help you estimate the value of your recycling program to your refuse hauler, who will be paying less for disposal because you are reducing your refuse by the amount you recycle. For instance, if a hauler ordinarily pays \$50 a ton to dispose of refuse, and your property recycles 20 tons a year, the hauler saves \$1,000 a year. You may be able to use your calculations to renegotiate your contract with your hauler.*

STEP 4 IDENTIFY AVAILABLE RECYCLING SERVICES

Recycling may be new to your property, but there are many sources of recycling expertise in your community. There are many property managers in the County who have had much experience with recycling. In addition to the County Office of Recycling, many private hauling companies and consultant firms offer a variety of recycling services. These services are often just a phone call away. See enclosed list of current recycling service providers. Please note that the recycling service provider list is constantly changing.

CALL #1 *Your first phone call should be to your current waste hauling company to discover whether they offer any recycling services. Services often offered for a fee include providing recycling bins, collecting recyclables, and promoting recycling. Some recycling companies require minimum amounts for collection and certain recyclables preparation, e.g., newspaper tied in bundles, glass color separated. Even if your hauler does not currently offer recycling services, your inquiry may be enough to stimulate his/her interest. It is generally cheaper and simpler to use the same hauler for refuse collection and recycling. Additionally, a waste hauler sees a benefit when recycling succeeds.*

CALL #2 *Your second call should be to "shop around" for recycling companies and consulting firms in your area that offer recycling services at competitive prices. Private company services include program design, promotion assistance, equipment, collection and marketing. In addition to the enclosed list of recycling service providers, you can locate these companies through the telephone book "yellow pages" under recycling.*

The recycling contractor may be able to provide any level of service at varying costs. The contractor could, for example, simply pick up from one designated outdoor location (cheapest arrangement) or go to each chute or trash room. The greater the degree of consolidation that either your residents or maintenance staff can perform, the lower the costs will be to you.

Before contacting any of these sources, be prepared to provide information on the number of units in your building, your existing refuse collection and disposal system, your estimates of the amounts of recyclables in your refuse (see page 5), and available equipment (e.g., carts, hand trucks, vehicles, containers, etc.) and manpower.

When you call to arrange recycling services, be certain to ask for a written proposal of services and costs. Requested information may include: what materials the company collects, minimum collection amounts, materials handling requirements (in bins, tied), equipment provided, and contract terms.

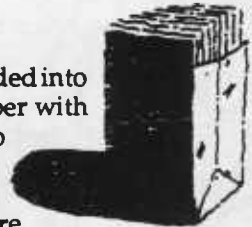
STEP 5 DESIGN YOUR RECYCLING PROGRAM

Designing a recycling program means determining the type of recycling collection system that best "fits" your building.

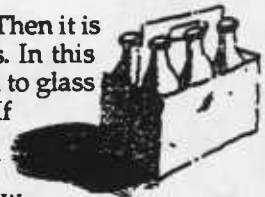
Selecting Materials

The County's legislation designates which materials you must recycle: newspaper, aluminum, glass, tin and plastic. Other materials you can recycle if you so choose are: cardboard, mixed paper and yard waste. Each recyclable material follows a different route on the return journey for re-use.

Newspaper is delivered directly or baled and hauled in trucks to the paper mill and loaded into a machine called a hydropulper that acts like a huge kitchen blender. It mixes the paper with water to separate the paper fibers, turning it into paper pulp. Chemicals are added to remove and wash away ink. Contaminants like staples, dirt and plastic are removed by passing the resulting pulp through screens and centrifugal cleaners. The pulp is bleached or dyed and mixed with fillers or stabilizers. Then the pulp is fed onto a wire mesh that presses it between rollers to squeeze out excess water before it is dried on heated drums. The results are enormous rolls of paper or cardboard that are several yards wide and weigh several tons. They are cut into smaller sizes for shipping to suppliers.



Glass containers are manually separated from other materials, and sorted by color. Then it is mechanically crushed in a process which also removes metal caps, rings and labels. In this form, it is referred to as "cullet." Cullet leaves the processing facility and is delivered to glass manufacturers where it may be screened again for objects that contaminate the mix. If not removed, these contaminants can seriously damage the glass furnace or produce a container of poor quality. Cullet is added in proportions of up to 40% to batches of new glass and formed into new glass containers according to client specifications. New technology even allows 100% cullet content in the production of new glass containers.



Aluminum cans are first manually or mechanically separated from other recyclables and then crushed and blown into a trailer or crushed and baled into briquettes for shipment to smelting plants. Once received, the briquettes are shredded, melted, and cast into ingot or rolled into can sheet. Can sheet is delivered to a factory where it is stamped into new cans and shipped to various beverage producers to be filled with soda, beer or juice.

Tin cans (some times referred to as steel cans) are actually steel cans with a thin tin coating to prevent rusting. They are automatically separated by magnets from commingled materials then crushed and crumpled into nuggets. These nuggets are delivered to a detinner that reclaims the tin through an electrostatic wash, leaving a high-grade steel that can be converted back into new cans.



Plastic containers are manually or mechanically separated from commingled materials at the processing center and sorted into categories according to markets. These materials are baled and shipped for additional processing, such as grinding into flakes or pellets and washing. In this form, the material is sent to manufacturing plants to generate a variety of products including strapping material, carpeting, fiber filling for clothing, and containers which do not come into contact with food, such as flower pots.

Check with your landscaping company to see if they are composting yard waste. They may bring grass and leaves to the County composting facility free of charge. Even better, yard waste can be composted into useful mulch right on your property. Call the Office of Recycling for details.

Current national recycling figures indicate that 45% of all discarded aluminum, 15% of glass, 28% of paper, 2% of plastics, and 20% of all discarded steel is recycled.

Source: Congressional Office of Technology Assessment Report: "Facing America's Trash", October 1989.

RECYCLING PROGRAM DESIGN OPTIONS

Participation in recycling is highest when the program is convenient. The most successful and convenient programs to residents, building staff, and refuse haulers are designed to parallel the existing building refuse collection and disposal system.

Bear in mind that bottles and cans may not need to be collected separately. This will depend upon the separation capabilities of your hauler. Newspapers always need to be kept separate from potential sources of "contamination" by food waste, plastic bags, glass and other materials. This contamination renders the newspaper nonrecyclable.

The following paragraphs suggest recycling options based on the type of disposal system in your building(s).

1. SINGLE EXTERIOR SITE

Compartmentalized recycling dumpsters or 90 gallon carts can be placed in one central location on the premises. If space is unavailable, a storage shed (6'x5'x4') can be used to house recycling containers. This system will be easiest for the hauler and hence the least expensive method. However, sometimes a great deal of space is required and participation may be lower due to the inconvenience factor.

2. MULTIPLE EXTERIOR SITES

Recycling bins or dumpsters, with separate compartments for recycled materials can be placed adjacent to exterior disposal site. These bins should be kept separate and clearly marked. These programs require minimal additional work by building staff and are convenient for residents and recycling service provider. Residents that receive curbside refuse pickup can also arrange for recyclable material pickup at the curb.

3. SINGLE INTERIOR SITE

A recycling area can be set up at an interior location using separate containers — 32 gallon pails, bags, 55 or 90 gallon drums — to collect and store your materials. This central collection area should be in a convenient location to maximize resident participation. Possible indoor locations include areas near elevators or mailboxes, chuterrooms, end of hallways, or in a common use areas such as a laundry room, lounge or lobby. If space is unavailable at the main refuse site, nearby storage rooms could be used as long as the room meets all health, safety and fire codes. For instance, egress from buildings may not be blocked. In addition, newspaper storage is not allowed unless sprinkler systems are in place. Building staff or resident volunteers may be needed to set up and maintain the recycling area, and move the materials to exterior pickup site. An exterior storage shed also could be used in this situation.

4. MULTIPLE INTERIOR SITES

Generally, multiple interior systems have a site on each floor where refuse is placed, e.g., chute room or service loading area. If these areas have sufficient space, containers can be set up to collect desired materials. If space is unavailable, a central interior or exterior site could be used to store collected materials. Building staff, resident volunteers, or contractor will be needed to handle the materials and move them to a central pickup site.

There is no one "right" way to recycle in your building. You are encouraged to consult with residents, staff, your hauler and a County recycling planner to discuss different recycling options. This approach allows you to "mix and match" the options summarized below. A recycling plan must be submitted to the County for all rental properties of more than 100 units. The plan form and instructions are enclosed in this booklet.

Recycling Options Summary

| <u>Materials</u> | <u>Storage</u> | <u>Pickup Areas</u> | <u>Collection Services</u> |
|------------------|----------------|---------------------|----------------------------|
| Newspaper | Basement | Curbside | Building Staff |
| Glass | Dumpster | Basement | Private Contractor |
| Aluminum | Shed | Shed | Municipality |
| Cardboard | | Dumpster | Nonprofit Groups |
| Plastics | | | |
| Tin | | | |

Once you estimate the potential weight of your weekly recyclables (see page 5), you can determine your storage container needs based on container capacities. For example, if you have 300 units your property will generate 990 lbs./week of newspaper (300 units x 3.3 lbs./unit/wk.). Since one 90 gallon bin holds 250 pounds, four bins will be needed for newspaper.

Estimating Recycling Storage Container Needs

CONTAINER CAPACITY (pounds)

| <u>Containers</u> | <u>Cubic Yards</u> | <u>Newspaper</u> | <u>Glass</u> | <u>Aluminum Cans</u> | <u>Plastic</u> | <u>Tin</u> | <u>Comingled*</u> |
|-------------------|--------------------|------------------|--------------|----------------------|----------------|------------|-------------------|
| 90 Gal. Cart | .5 cy | 250 | 300 | 30 | 15 | 80 | 140 |
| 55 Gal. Drum | .3 cy | 150 | 180 | 18 | 9 | 48 | 80 |
| 11 Gal. Bin | .06 cy | 25 | 21 | 3 | N/A | 16 | 16 |

* Comingled includes glass, aluminum, plastics and tin.

The type of container selected will be based primarily on your recycling contractor's capabilities and the container location. Trucks, labor and equipment type determine which containers will work best. For instance, containers should be leak proof, easy to clean, waterproof (if location is out of doors) and secured against theft if vandalism is a problem. Consult with your contractor before selecting your containers.

STEP 6 SIGN CONTRACTS AND PURCHASE EQUIPMENT

The equipment needed for your recycling program will depend on the selected materials, the required preparation, storage capacity, and your contract with a recycling service provider. Equipment is needed to collect, store, and prepare the recyclables for pickup. **Your contractor may or may not require you to separate materials by type or glass by color.** It is important to remember "clean" materials are critical to the recycling process. The following chart shows the highest degree of separation your contractor may require. Check directly with contractor before proceeding with recycling plans.

| Recyclable Materials Preparation | | | |
|----------------------------------|---|--|--|
| <u>Materials</u> | <u>Resident/Building Staff</u> | <u>Broker</u> | <u>Market Requirements</u> |
| Newspaper | Place paper in brown bags, stack or tie paper bundles. | Bales stacks of paper. | Newspaper only; no magazines, colored paper, food or other contaminates. |
| Glass | Rinse, separate by color (brown, green, clear) and store in separate containers. | Crushes color separated glass. | No mirrors, light bulbs, glassware, lids or windows. |
| Aluminum | Rinse, may flatten cans to reduce storage needs. | Bales and removes steel cans. | No steel, iron or tin. |
| Plastics | Sort and store two plastic bottle types (resins): HDPE (milk jugs, laundry detergent containers) and PET (soft drink containers); may flatten plastics to reduce storage needs. | Bales separate plastics; may grind-up plastic into chips or pellets. | Resins must be separate from other plastic resins. |
| Tin (Coated Steel) | Remove labels and rinse. | Crushed and detinned. | No contamination (either food waste or labels). |

By understanding the preparation requirements of the materials you choose to recycle, you are in a better position to negotiate a contract with either a full service recycling company or with a refuse hauler. A full service company may provide containers, design, and operate your recycling program, for a certain fee. Many refuse haulers offer full service recycling contracts. You must decide which arrangement best "fits" your situation.

When choosing containers remember that they should be: easy for the hauler to handle, easy for residents to use, leak proof, adaptable for different spaces and **recognizably different from trash containers.**

Contracts should be written to include many of the following items: collection on a designated frequency (i.e., weekly), monthly provision of weights by material (i.e., 3 tons of newspaper and 2.5 tons of all other mixed material were recycled in October), specification of container types and locations, length of contract, who receives revenues from materials, responsibility for damage or loss of containers, what is to be done with trash removed from containers, collection day specification, provision of containers, proper disposal of contaminants (trash), notification of missing or damaged containers, proof of disposition of materials at recycling facility (weight tickets), etc. Since you are required by County law to ensure that recyclables are being recycled, not landfilled, in turn require your contractor to do the same.

Purchase of central collection containers may be reimbursed by the County through the apartment grant program. To apply for a grant, please send enclosed grant form. You will find in the enclosures a list of recycling service providers and distributors of containers.

ESTIMATED RECYCLING EQUIPMENT COSTS

| Collection and Preparation | Cost | Storage Equipment | Cost |
|-------------------------------------|----------|--------------------------------------|-------------|
| Resident recycling bins (11 gallon) | \$ 6.00 | Wooden / plastic shed (4'x7'x8') | \$ 150.00 |
| 32 gallon recycling container | \$ 20.00 | Prefabricated steel shed (5'x7'x6') | \$ 450.00 |
| 90 gallon recycling container | \$ 75.00 | Prefabricated steel shed (7'x10'x6') | \$ 1,000.00 |
| Newspaper tying rack or stand | \$ 45.00 | 2 cubic yard dumpster | \$ 400.00 |
| Hand truck | \$ 75.00 | " " (with compartments) | \$ 700.00 |
| Wheeled cart or rack | \$ 90.00 | Fire sprinkling system | \$ 3,500.00 |

STEP 7 EDUCATE, EDUCATE, EDUCATE

One of the purposes of this manual is to educate you about the value of recycling to your building(s) and to your community. To make recycling work, you have to continue your own education and initiate programs to educate your residents.

Education of your residents is crucial to the success of your program. The two primary components to educating your residents include:

- 1. Recycling Promotion**
- 2. Program Information**

Recycling Promotion

You can begin to educate your residents about the economic and environmental benefits of recycling before you start recycling in your building. By promoting recycling early, and involving residents in the development of the program, you are more likely to receive the support you need to make recycling a success. A resident recycling committee is an enormous help in designing a program, distributing educational materials, and generally promoting recycling. Ask for volunteers through a newsletter or posted flyers. It is important to keep promotional messages upbeat and simple. **Promotional materials are available through the County Office of Recycling.** Please include your requests for these materials in your recycling plan.

Program Information

It is very important that the responsibilities for recycling are communicated to the residents. Resident participation in the program may depend on how clearly recycling is explained. Recycling program descriptions should be clear, concise, and consistent. Too much explanation, and too many changes, can confuse residents. Clearly marked and well-maintained collection areas are also very important.

It is also important to maintain promotion and information activities throughout the life of your program. Regular reminders and notices of recycling successes are very effective for maintaining resident interest and support. Include educational materials in new residents' packages.

Residents usually respond best to direct contact. Examples of methods to reach your residents include:

- flyers under doors
- letters from the property management company
- notices in bills or newsletters
- door hanger announcements
- posters in common areas and at recycling site
- recruiting resident volunteers
- creating a resident committee

STEP 8 IMPLEMENT YOUR RECYCLING PROGRAM

If you have carefully followed steps 1-7, implementing your recycling program should be simple.

- First, you must **set a recycling program start date**. Pick a day that accommodates the needs of residents, building staff, and recycling service provider. Be committed to one date.
- Once you set a start date, you may want to **spend a little extra time promoting the program**, for instance, arranging for a "kick off" event.
- Over the first few months, it is important for property management to **keep a close watch on the development of the recycling program**. Many small problems can grow quickly during a recycling program's formative months. Early identification and response to any problems buffers the residents from inconveniences and sustains their participation.
- County law requires you to maintain and to submit to the County semiannual records on the amount of materials your property has recycled (see enclosed reporting form). In turn, written into your contract, you should require monthly weight information from your recycling service provider.
- As the recycling program matures, the residents, property managers, and service providers should begin to feel **comfortable with their new responsibilities**. With experience and practice, the success of your recycling program should build on itself. Your recycling program's reputation may even gain you some favorable **local publicity**. People moving into the area will find your recycling services an attractive housing option.

| | | | | | |
|---|-----------------|---|---------|---------------------|----------|
| January | February | March | April | May | June |
| Pick A Day | | | | | |
| | Start Recycling | Closely Monitor Recycling Program Development | | | |
| Promotion | | | | | |
| July | August | September | October | November | December |
| Closely Monitor Recycling Program Development | | | | | |
| | | | | Getting Comfortable | |

FINAL NOTE

After completing steps 1-8, it should be clear to you that multifamily recycling programs greatly benefit from the firm commitment of property management. But property managers are only one piece of the recycling puzzle.

Recycling is a community responsibility that is shared by residents, property management, local businesses, local schools, and local governments. We all contribute to our growing refuse disposal dilemma, and we all have a stake in making sure our refuse is properly managed. We're already part of the problem, so let's become a part of the solution, and start recycling today.

III. CASE STUDIES

The following actual case studies provide examples of successful recycling programs in three Prince George's County multifamily properties. The case studies illustrate how recycling programs were designed and operated for the three basic types of multifamily refuse collection and disposal systems.

| RECYCLING PROGRAM DESIGN FACTORS | CASE #1 Multiple Interior Sites | CASE #2 Multiple Interior Sites | CASE #3 Multiple Exterior Sites |
|--|--|--|---|
| Name of Building | MacGuire House | Racquet Club | Hunting Ridge |
| Location | Oxon Hill, MD | Adelphi, MD | Greenbelt, MD |
| Property Type | County public housing | Highrise condos | Garden-style condos |
| Number of Bldgs/ Entranceways | 1 | 1 | 43 |
| Number of Floors | 7 | 12 | 4 |
| Total Number of Units | 192 | 199 | 362 |
| Materials Recycled & Amts. Newspaper Glass Aluminum | 250 lbs/wk 225 lbs/wk 6 lbs/wk | 2000 lbs/wk 300 lbs/wk 15 lbs/wk | 625 lbs/wk 750 lbs/wk 40 lbs/wk |
| Recycling Program Design | Recycling bags on racks for cans & bottles in each chute room. | Stackable, 11 gal., milk crate type containers in each chute room. | Recyclables placed in 90 gallon bins at each outdoor dumpster site. |
| Building Staff Time | None- contractor collects from each floor | 1/2 hr. per day | None |
| Comments | Chute rooms are not sprinkled, hence news- papers are collected on ground floor in two-90 gallon bins next to laundry room. Alum- inum pans used by residents' cafeteria are recycled. | Maintenance staff bring materials down to central trash room and stores in seven-90 gallon container. | Active recycling committee organized & monitor program. Their enthusiasm is reflected in high recycling rates. |
| Contact for Questions | Charles Pulliam Resident Manager 894-6400 | Dave Arnold Director, Property Management 441-1070 | -- Deborah Traas Property Manager 345-1777 |

Plastic grocery sack recycling

by Arthur Amidon

Arthur Amidon is a recycling consultant with Moore Recycling Associates, Hancock, New Hampshire.

Programs that recover plastic grocery bags are nascent, but hold promise.

One of the fastest growing segments of recycling is plastic grocery sack recycling. In the past year, programs have been started throughout the U.S. and Canada, and by late summer 1990, over 10,000 supermarkets were participating in plastic grocery sack recycling programs. This represents over 30 percent of the 30,000-plus supermarkets nationwide. This is an incredible jump from the handful of stores conducting programs at the beginning of the year. The increasing number of programs is an indication of the level of commitment on the part of the grocery sack manufacturers and retail grocers. Grocery stores have been joining the programs at the rate of approximately 1,750 per month. If this rate continues, all interested supermarkets could be on line by the summer of 1991. The fall of 1990 sees grocery sack recycling programs maturing, most with overwhelming success.

Around 23 billion plastic grocery sacks are consumed by the grocery industry per year. The use of plastic sacks in grocery stores has grown steadily over the last 10 years. The replacement of brown paper bags with plastic sacks is a continuing trend. In 1982, plastic grocery sacks represented 5 percent of the grocery bag market. Plastic has now captured 60 percent of the market. This represents somewhere around 383 million pounds of high density polyethylene (HDPE) and low density polyethylene (LDPE) available for recycling annually.

Four manufacturers provide most grocery sacks to North America: Sonoco Products Company, Inc. of Hartsville, South Carolina; Mobil Chemical Company of Pittsford, New York; Vanguard Plastics, Inc. of St. Louis, Missouri; and the PCL Group, represented by PCL Packaging Ltd. headquartered in Oakville, Ontario and PCL & Eastern Packaging Ltd. of Saint John, New Brunswick. Each company has made a firm commitment to remove plastic grocery sacks from the waste stream and make them into new useful products. The methods used by these manufacturers (as well as the other smaller sack producers) are varied.

Grocery sack manufacturers have made the retailers' task of joining recycling programs easy by providing them with collection bins, stock sack graphics, examples of promotional pamphlets and posters, as well as a ready market for all of the collected material.

Each recycling effort has its own unique features that each member of the program works with to create a successful program. Most sack manufacturers began with programs that addressed some basic, very important, questions.

- What problems will be encountered?
- Will shoppers return the sacks without cash incentive?
- How clean will the collected sacks be?
- How economical will the collection, transportation and processing be?
- How can the program be expanded?
- What will the program become?
- Can the program become self supporting?

Pilot programs grow

Many of the pilot programs started with outdoor recycling bins, often regular trash barrels with signs explaining they were barrels for plastic grocery sack recycling, not trash. Unfortunately, this message was not always heeded, and the result was confusion for the customer and contamination in the form of cans, bottles and general trash. The collection method has been dropped in favor of in-store collection sites.

The rack used for in-store collection on Mobil's program evolved as kinks were worked out. In the beginning, Mobil's program employed an all-weather trash can clearly labeled on the top and sides "for plastic grocery bags only." However, contamination was high. The receptacle was brought inside the store, but customers still used it as a trash can.

The next step was to replace the trash can with a metal rack draped with a clear polyethylene bag with the word "RECYCLE" printed across the front. A waterproof lid was employed. This lid was later replaced with a plastic top that was not weatherproof.

Some people think recycling is a lot of garbage.

JUST "BAGIT"

The "BAGIT SYSTEM" makes recycling convenient and economical. It is so simple even children can do it.

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"BAGIT SYSTEMS"

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allowed a clear view of the contents. Attached signs indicate the container is for plastic grocery sack recycling only. This combination seems to be working very well at this stage of the recycling project.

Mobil's pilot program started with Wegmans Food Markets of Rochester, New York. The joint program began with the Ridge-Culver store on February 1, 1990 and soon expanded to seven stores. Mobil, like other manufacturers, supplies recycling racks (or bins) to the stores at cost. The stores are responsible for collecting and shipping the sacks to a centralized location, usually the store's warehouse, where they are baled. When a sufficient amount has been baled, the warehouse calls Mobil, which will pick up, or have a common carrier pick up, the baled sacks within 48 hours.

As of mid-June, the Mobil/Wegmans program collected 19,000 pounds of plastic grocery sacks. By mid-July, the total was up to 32,000 pounds. The number of participating Wegmans stores had grown to 42, and the total stores in Mobil's nationwide program had passed the 2,000 mark.

Vanguard's first pilot program began in St. Louis in October 1989 and consisted of two Dierburgs stores and two Schnucks stores



Cardboard boxes with polyethylene liners are available to grocery retailers participating in Sonoco Products' plastic bag recycling program.

with one drop-off box each. Vanguard offers the stores fiber collection drums and plywood boxes large enough to house a Gaylord container. Stephen Van Asdale, company spokesman, characterizes the store patron response as being "overwhelming." He noted, "the first week the boxes average nine pounds of sacks, in week nine the weight was up to 60 pounds per week, and by the twentieth week each box was receiving 100 pounds per week of HDPE sacks to be recycled."

Sonoco offers grocery retailers three different collection bins: a cardboard box, a recycled fiber drum, and a plastic container with clear front. All have removable polyethylene liners and stand around three-feet tall. Bob Householder, marketing manager for environmental issues in Sonoco's High Density Film Products Division, explains that their plastic bag recycling program began in March 1989 and by late August, the Sonoco-sponsored

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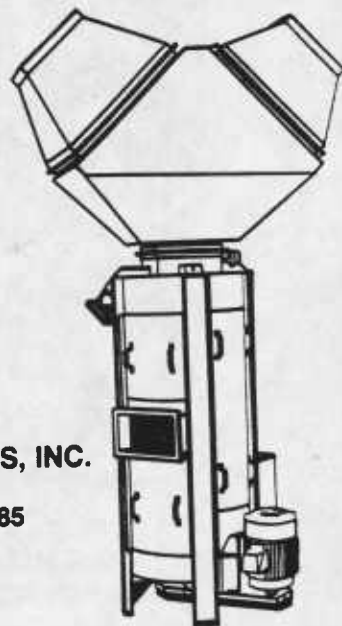
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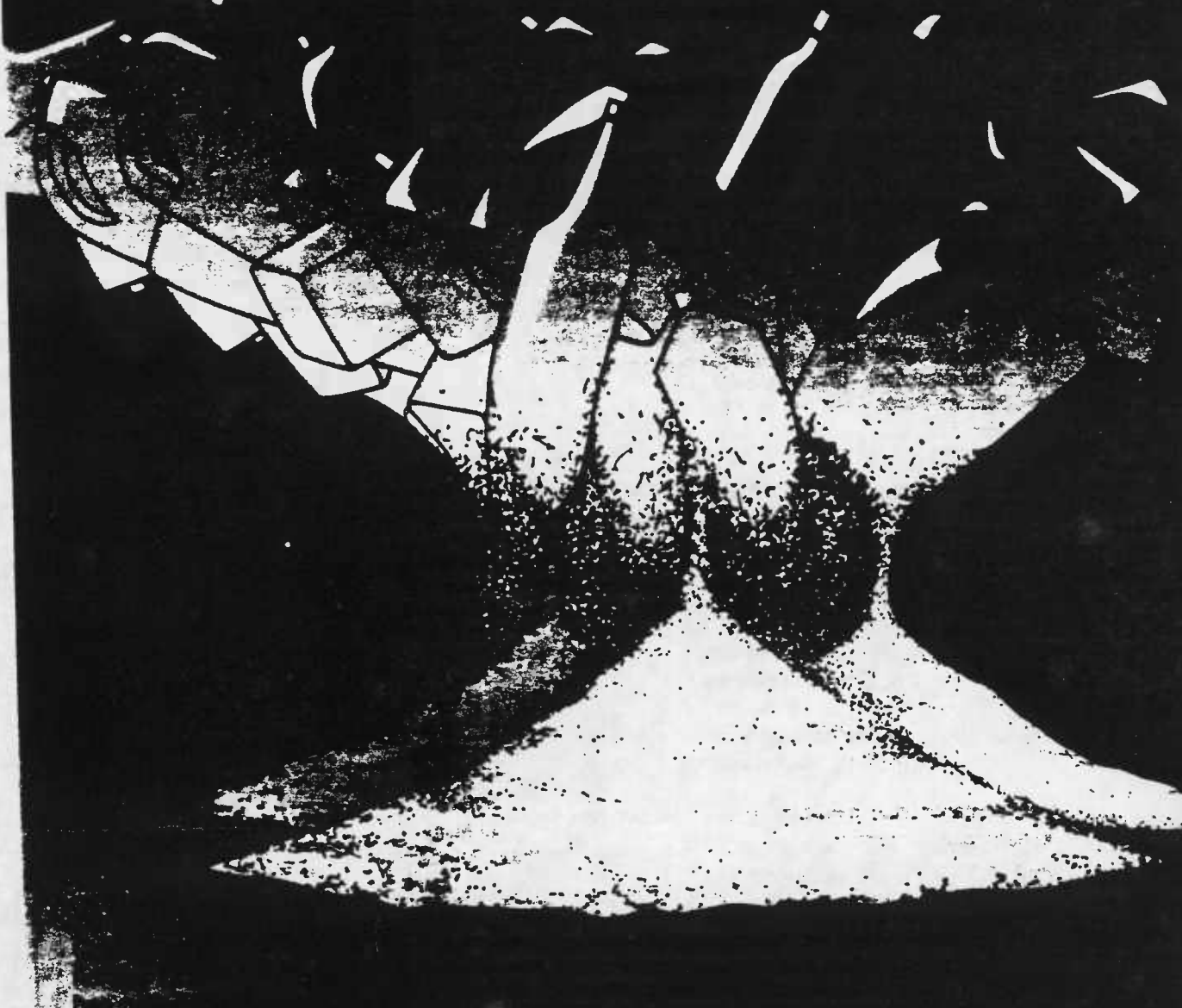
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programs were operating or pending at 6,732 stores.

Richard Thompson, formerly of PCL Packaging in Oakville, Ontario, characterized PCL's pilot program at the A&P and Food City stores in Toronto as collecting approximately 3 percent of the sales volume of plastic grocery sacks during the first month of operation in the average supermarket. Each month that figure doubled to 6 percent, then 12 percent, and leveled off at 24 percent in the fourth month. Paul Rahn, plant manager of the Oakville facility says, "There are three basic conditions that are needed in order to get high levels of collections: bin design, bin location and specific signage. In many of our participating stores, we are collecting 15 to 20 percent and with effort, we expect to increase these figures." PCL had nearly 1,000 supermarkets on line by early fall.

According to Thomas Millar, president of PCL & Eastern Packaging of Saint John, New Brunswick, by late summer 1990, 347 stores were participating in PCL's LDPE recycling program, which began in July 1989. After a full year of operation, the percentage of store participation has reached 80 percent in Atlantic Canada and 90 percent in Northern New England. Both areas collect 15 to 20 percent of the sack weight purchased. These percentages may be an indication of the kind of store and shopper participation we may see as some of the larger and more recently implemented programs mature. Because the stores serve a rural population and there are few HDPE sacks used in the area, store boxes average 91 percent clean LDPE. In more heavily populated areas, the market mix of LDPE to HDPE sometimes approaches 50/50. By July 1990, PCL & Eastern had one full year of operations and received 1.1 million pounds from store collections.

In addition to its supermarket recycling programs, PCL & Eastern Packaging works with three municipal curbside programs collecting LDPE film in Nova Scotia and New Brunswick. The curbside programs are generating approximately six pounds per household per year, providing PCL with 98 percent clean material. Millar calls the curbside programs "the most efficient collection system" and adds, "we want curbside collection to replace our grocery store bins."

The cost of the collection bins (wire racks, fiber drums, plywood boxes, etc.) varies from program to program and is passed on to the store chains. The costs related to collecting the sacks and monitoring the collection program are all borne by the grocery stores as part of their commitment to the bag manufacturer, their customers and the environment. This also pays the additional dividend of enhancing the image of each store in the community.

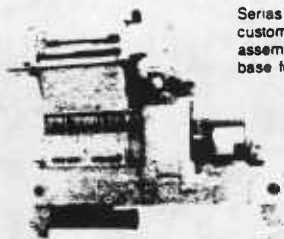
Cooperation is key

By initiating plastic grocery sack recycling programs, plastic sack manufacturers are helping to reduce the amount of waste being landfilled or incinerated by a municipality, thus reducing the costs to all taxpayers. The manufacturers also have a vested interest in helping set up a recycling infrastructure. Recycling plastic sacks saves natural resources, assures resin reclamation and meets public policy demand for recyclable products. The manufacturer who is able to set up successful

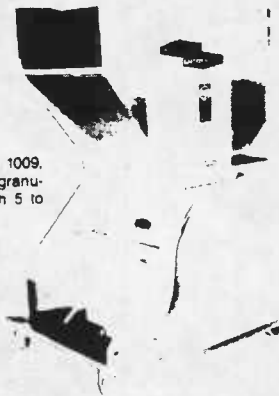
recycling programs and use the collected sacks to make more sacks will be "closing the loop" and will have a competitive advantage over those manufacturers that don't make the effort to integrate post-consumer collections into their products.

The entire plastic grocery sack recycling program is a good example of the importance of cooperation among the various groups involved. Without the zeal of some shoppers, many of today's programs would not have begun. On the other hand, this same en-

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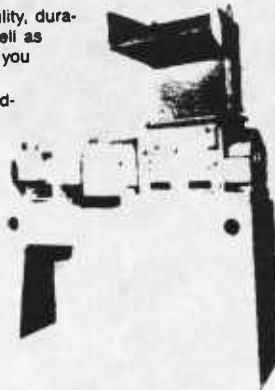


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thusiasm has caused some shoppers to bring in every piece of film available, some of which is incompatible with a particular recycling program. The way around these problems is to educate the shoppers about exactly what is needed for successful recycling. The more knowledgeable the consumer is, the easier it will be for the recovered plastic to find a valuable spot in tomorrow's world. Many of the programs teach the shopper to turn the sacks inside out before dropping them off. This removes any pieces of stray lettuce or paper receipts. Other programs have the store check-out person hand the paper receipt to the shopper, not putting it in the sack at all. Paper is the largest contaminant in many of the programs. Other forms of contamination are usually the result of improper disposal of cans and bottles.

Grocery sack manufacturers are reluctant to give specific numbers of sacks sold, percentages recycled, pounds used and pounds of post-consumer film collected. This and the immaturity of the programs tends to cloud the calculation of recovery rates for plastic grocery sack recycling. Participation rates vary from program to program, and are due to policy, promotion, education and the success of pilot studies. Recovery rates vary from 1 per-

cent to 30 percent of the total sacks sold on a store-to-store basis. Knowledgeable industry representatives predict that mature programs will be able to collect from 12 percent to more than 30 percent of the sacks.

Collected plastic sacks are processed into new grocery bags, trash bags, bottles, or pallet protection devices.

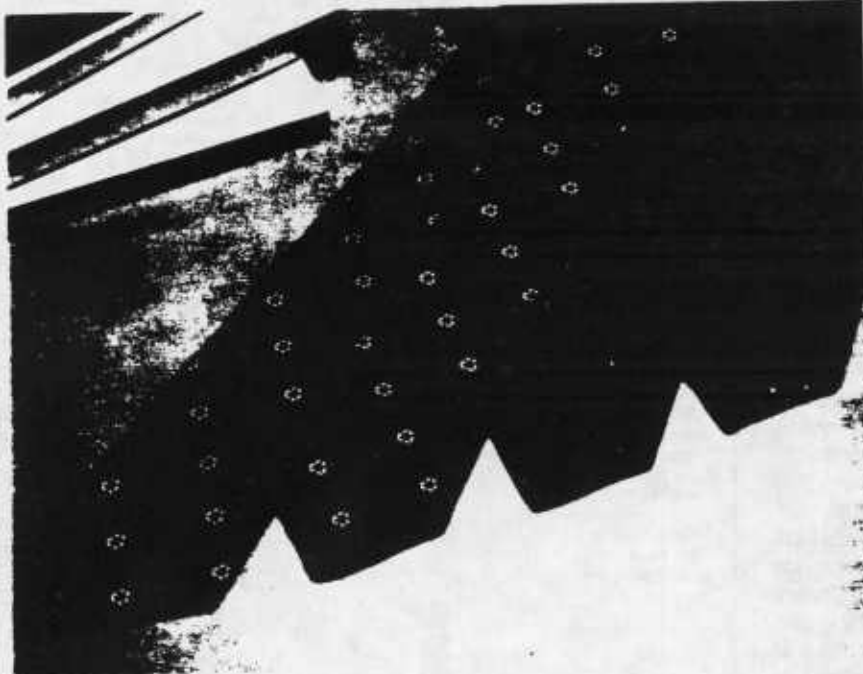
Some regional manufacturers have not yet been able to create the atmosphere for a successful program. As a result, the amount of sacks collected by one manufacturer is only 1 percent of those sold. Additionally, only 5 to 10 percent of the material collected is usable because of the high level of contamination. Some of the reasons for this apparently ineffective program are poor placement of some recycling bins at the store exits rather

than the entrances, absence of collection bags at the designated spots, piles of returned bags next to overflowing bins, a general perception that this is not recycling. Underlying causes include lack of commitment from the manufacturer, management and employees. A disclaimer note is the claim by one minor regional manufacturer on bags marked "Made from recycled Plastics." In actuality, the bags are less than one-tenth of 1 percent recycled consumer film. It will take dedication and enthusiasm to turn this kind of slow start into a positive and rewarding program.

Retailers have a stake, too

Ted Brown, environmental coordinator at Hannaford Bros., a grocery store chain in Portland, Maine, sums up its plastic bag program this way, "You can't pass the buck. We have recycling programs in our stores because it's the right thing to do. Many of the communities where we have stores have no other way to recycle the plastic bags. We will take bags that come through the door because we are a responsible member of the community. It is the right thing for us to do. It may not be the right thing to do tomorrow, but today we have another choice." Brown feels

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the next few years there will be a dramatic shift to curbside collection.

The retailers have many reasons to encourage the recycling of plastic sacks. Plastic grocery sacks are less expensive to purchase, transport and store than paper sacks. Plastic sack recycling promotes the store's commitment to recycling and environmental responsibility. Many retailers print messages on the sacks providing tips on such diverse subjects as home composting of lawn and food wastes, source reduction of the waste stream through consumer purchasing awareness, and the ability to recycle various scrap materials.

Many participating grocery store chains, such as Hannaford Bros. Co., have developed environmental and recycling departments within their organizations. This has made the addition of plastic grocery sack recycling an easier task. Hannaford stores provide more than just collection bins; they also have large informational tables around the bins. These contain information about the plastic sack recycling program as well as other company-wide commitments to the environment, such as recovering cardboard boxes, stretch wrap and office paper. These information areas often provide general infor-

mation about state and local recycling programs and other "green consumer" programs.

Grocery sack manufacturers have provided retailers with collection bins, graphics for sacks, promotional materials, and most importantly, a market for the collected sacks.

Comprehensive promotion and educational materials have played a major part in successful sack recycling programs. Circulars, newspaper and television advertise-

ments, and store window display posters are some of the methods used to get the recycling message across to shoppers. Another way retailers keep the recycling programs on shoppers' minds is by providing lapel buttons for all store personnel. Some plastic grocery sacks are printed front and back with instructions on how to participate in the recycling program.

The collected sacks from the stores are usually transported by the supermarkets, either as a back haul in a delivery truck or a direct haul to the distribution center in a trailer used specifically for storing recyclables such as sacks, cardboard boxes, pallets, etc. Some stores use bulk apple bins (15 to 20 bushels) and cardboard watermelon boxes as backroom storage containers for the plastic sacks and other recyclables such as stretch wrap.

The collected sacks are baled at the warehouse. Bales can range from 800 pounds to 1,400 pounds depending on the type of baler and the baling techniques used. Depending on the volume available for recycling, Sonoco will lease balers to the chain warehouses or place trailers to provide distribution centers with a storage area specifically for collected grocery sacks.

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




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■ Table 1 — Plastic grocery sack recycling programs, August 1990

| | Sonoco Products | Mobil Chemical | Vanguard Plastics | PCL Packaging | PCL & Eastern |
|-----------------------|---|---|---|---|---|
| Stores on line | 6,732 | 2,321 | 2,000-2,500 | 900-1,000 | 2,000-2,500 |
| Percent bags returned | 8-12 | 20 | 20-25 | 15-20 | 20-25 |
| Final product made | Bottles; Edgeboard | Trash bags | Grocery bags | Grocery bags | Grocery bags |
| Bag graphics |  HDPE |  HDPE |  HDPE |  LDPE |  LDPE |

Processing upgrades quality

In some programs, bag manufacturers transport the collected sacks from the store's warehouse to the manufacturing plant. Others provide transportation allowances to retailers that deliver the collected sacks. There are also sack manufacturers that purchase clean, source-separated film from municipal curbside collection programs as well as from recycling processors with access to large amounts of clean film.

To process the collected sacks, the bales must first be broken open. Manual sorting

then separates the target resin from other resins and other contaminants. Some of the contaminants encountered are cotton cords used as drawstrings, starch-modified "biodegradable" bags, paper from register receipts, cans, bottles and trash. In general, as programs mature, material quality improves. The need for resin separation depends on the end use. In some programs, the HDPE/LDPE mix dictates the end use because it would be too costly to separate materials by resin.

After manual sorting, the bags are shredded, heated and either densified or extruded into pellets, to be used in a variety of products. If necessary, some programs wash the collected bags.

End products

Because PCL & Eastern has very little HDPE in its collections, it's able to process the resultant high grade pellets back into plastic grocery sacks. PCL Packaging also processes its collected sacks into new grocery bags.

Mobil's collections are a mixture of HDPE and LDPE. Kevin Hart, market development manager of grocery sacks, says the mix of HDPE and LDPE is not a problem. The recycled pellets are now used as part of the feedstock for a line of industrial waste sacks where the resin mix is not as crucial as it would be for plastic grocery sack applications. Mobil hopes to be using the collected plastic grocery sacks as a component of a new grocery sack by the end of 1990.

Sonoco's sacks are HDPE, but their collections contain over 40 percent LDPE. Sonoco is currently using its collections to manufacture products like plastic oil bottles and Edgeboard, a protective cornerboard product used when stretch-wrapping some pallets. In the future, they too hope to be recycling sack resins back into sacks.

Vanguard's HDPE recycling process allows up to 10 percent LDPE. These mixed resin pellets are then used with post-industrial reclaimed resin and made back into plastic grocery sacks.

Value-added recycling

Most manufacturers are technically capable of adding up to 50 percent post-consumer and post-industrial content to plastic grocery sacks. Today, the amount of post-consumer scrap used is limited by cleanliness and availability. Post-industrial scrap has long been used by the industry as part of the total content. Some manufacturers have printed plastic grocery sacks messages such as "This Bag is made of Recycled Plastic" or "This bag contains up to 50 percent recycled plastic shopping bags and is recycled repeatedly." Others have not mentioned recycled content. However, they do say the sacks are recyclable and use the coding symbol that identifies the plastic used in the sacks.

Rick Kralstein, company manager of Polymer, Inc., a Brooklyn, New York company, said that both post-industrial and post-consumer polyethylene film scrap, said the company purchases baled film and sees grocery collections as providing very high quality material. In speaking about grocery sack recycling, Kralstein says that the super clean collected resins separately. The store provide bins clearly marked "2" and "4" for HDPE and LDPE respectively, and one for "other" film that does not have symbols.

Another view is to have just one bin for commingled film is deposited. This could provide raw material for sorting with new separation technology. Kevin Hart says Mobil is interested in developing ships with processors across the country to increase its ability to handle the available post-consumer film. Recycling separation plants may be able to provide a service that could benefit manufacturers, retailers and municipalities. These processors may have additional markets for this kind of post-consumer material.

Some industry people believe it is possible to operate a plastics separation plant for profit in North America and

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opted for exporting the baled film for subsequent processing overseas. The repelletized film is then brought back to the U.S. and used as feedstock for various institutional bags. Still another attempt at using post-consumer film is as feedstock for plastic lumber.

New technologies will play a large part in recovering post-consumer plastic. The resin separation of collected plastic grocery sacks is now done by hand. Very shortly, however, most of the manufacturers will have mechanized sorting and will be able to handle the expected influx from additional collection programs.

The value of mixed resins on the open market is very low; however, separated HDPE and LDPE do have an inherently greater value. The worth of the clean separated feedstock is tied to the virgin resin it replaces. The greater the difference in price between virgin and post-consumer resins, the greater the competitive edge a manufacturer will enjoy. More demand for the post-consumer feedstock means processing capacity can develop more easily. By initiating plastic grocery sack recycling, the sack manufacturers have positioned themselves to learn as much as possible, as quickly as possible, and be more competitive in an increasingly frenzied marketplace.

Steve Van Asdale of Vanguard feels that at some point the manufacturers are going to have to begin paying for the collected sacks. "The stores are initiating all of these recycling programs as a customer and a community service," says Van Asdale, "and at some point when the volume of collections increase sufficiently, I am convinced that a secondary market will develop for the post-consumer sacks. So if we as manufacturers don't pay for the sacks, someone else will." As it is, most companies already pay to transport the baled sacks to their processing plants. Currently, there are very few companies paying for the collected material. However, as collections increase, the steady availability of clean source-separated film should be more valuable.

In the meantime, the retail stores and the sack manufacturers are underwriting the plastic grocery sack recycling programs. As Mobil's Hart puts it, "There are no free lunches, there are costs associated with any recycling program. Solid waste is a national problem, not just a grocery problem."

Plastic grocery sacks, although visible, represent a very small part of the waste stream. Plastic grocery sack recycling can, however, teach us that through cooperation and innovation we can recapture almost anything.

From the lessons learned through plastic grocery sack recycling, new programs can be initiated. The greatest lesson of recycling is innovation itself. **RR**

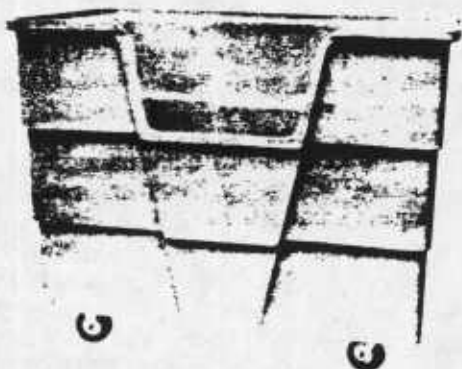
Kraft paper grocery sacks are recycled, too

Walden's Fiber & Board Report reports that Fletcher Challenge Canada, the huge paper manufacturing company, and the Overwaitea grocery chain, one of British Columbia's largest, are collecting kraft grocery bags for recycling.

Overwaitea customers bring their used bags to stores; the bags are collected at a warehouse, baled at FCC's Crown Packaging plant in Richmond, British Columbia, and then barged to Elk Falls Pulp and Paper, also in British Columbia. Newsprint and kraft paper shipments are already being barged from Elk Falls to Richmond.

Reportedly, the volumes involved will be small, only several hundred tons a year. Overwaitea stores are also collecting scrap glass, metal and plastic for recycling.

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Waste reduction and recycling at hospitals: building a healthy community

by Marie Nelson
and Maureen F. Steinberger

Marie Nelson is the public affairs supervisor of the Recycling Information Center at the Metropolitan Service District in Portland, Oregon. Formerly she was a business recycling specialist and commercial waste auditor, also for Metro. Maureen F. Steinberger is a consultant with the Portland, Oregon office of Resource Integration Systems.

A growing number of hospitals are taking the lead in reducing waste and recovering recyclable materials.

Waste disposal has emerged as a big expense and a big issue for hospitals. New laws and procedures governing infectious waste are getting most of the attention, but roughly 90 to 95 percent of the waste generated by hospitals is of the non-infectious type. This non-infectious waste accounts for an estimated 1 percent of U.S. solid waste and is rich in recyclables.

A waste audit conducted for Guelph General Hospital in Ontario, Canada, revealed the following waste composition: 5 percent infectious waste; 35 percent wet waste, such as food and yard debris; and 60 percent dry waste, including paper, glass, metal and plastic. In addition to a waste stream rich in recyclables, hospitals have opportunities for significant waste reduction by changing from disposable to reusable items and by requesting packaging changes of their vendors.

At the same time, doctors, nurses and staff at an increasing number of hospitals want to take a leadership role in implementing sound environmental practices. Engaging in responsible waste management is becoming part of the medical community's larger mission to build a healthy community.

The design needs of hospital programs are the same as for other complex institutions:

- a motivated recycling committee
- a formally designated recycling coordinator
- support of powerful, high profile organization members
- a good education and promotion program, particularly at program startup
- a well-thought-out design so the program runs smoothly
- awareness of local resources such as free waste audits, technical assistance, grants, and hospital foundation volunteers.

What follows are summaries of six successful hospital waste reduction and recycling programs.

Kitchener-Waterloo Hospital: a prototypical program

Kitchener, Ontario was the first in Canada to have curbside residential recycling collection service. It seemed natural to staff at Kitchener-Waterloo Hospital that the hospital should join in the effort to be, as manager of the program, Nancy Graham puts it, "grassroots oriented." Grassroots persistence resulted in a recycling committee in 1989 and a recycling program by October of 1989. Graham is the committee chair and Charles Whitlock, director of purchasing, is its secretary. Whitlock is also with the hospital's major supplier, Laidlaw Ltd., a waste hauling and recycling Corporation, to buy products in reusable or reduced packaging. So far, the program has cut trash hauls in half and is even financially.

The program started with waste hauling provided by Laidlaw Ltd., the hospital's waste hauler, and by a private equipment vendor. Graham feels that "Through audits were a big help in identifying recyclable items and suggesting equipment options."

The first phase of the program was a confidential office paper. To preserve confidentiality, KWH had been destroying confidential material along with biomedical waste in its own incinerator. However, this caused the incinerator to emit smoke visible to the neighborhood. Diverting confidential waste paper from the incinerator each month serves to preserve the environment, the incinerator and the hospital's goodwill.

The hospital uses a dual cylinder profile baler acquired on a lease plan to compact the old corrugated containers (OCC) that were soon to be the recycling program. Diversion since OCC is concentrated in the kitchen and hemodialysis area, doors were cut into a storage area for easy access to the receiving dock. Fifteen 800-pound bales are stored for removal to the loading dock for

Beyond the bright lights: six rural recycling programs

by Tom Watson
Resource Recycling

**These diverse programs
employ creative approaches
to meet the challenges of
rural recycling.**

Burned out on the big city? Run down by the rat race? Must be time for a little R and R. We're talking Recycling and we're talking Rural . . .

Come with us on a tour of recycling in America's heartland, also known affectionately as "the boonies." While the big city and suburban programs get most of the attention, many rural communities have found practical, innovative solutions to their solid waste problems. Increased funding from states has helped create what could be called a rural recycling renaissance. For a closer look at the latest recycling strategies in the land of country music and wide open spaces, let's check in on rural programs in Minnesota, Arkansas, Nevada, Maryland, California and Florida.

Hills and valleys in Minnesota

In Houston County, in the very southeastern corner of Minnesota, "there are lots of places to dump things," says county recycling coordinator Kevin Kelleher. The pleasant terrain of rolling hills and valleys has resulted in plenty of deep, inviting ditches. Someone can plop an old washing machine in there and it won't even be noticed for months. Because township officials identified roadside dumping as a significant problem, the county is accepting certain special wastes at four supervised drop-off sites. These items include tires and "white goods" such as refrigerators and washing machines. The program is funded by a flat monthly fee of \$0.50 per household added to utility bills; there is no charge at the drop-off site.

The first of these sites opened this fall, with the other three scheduled to go on line by the end of the year. Because illegal dumpers face a hefty fine, Kelleher believes most residents will opt for the legal alternative instead, since it won't cost them anything extra. He also anticipates decent markets for both the white goods and tires, since the county will periodically

consolidate them all at one site and take bids for large quantities.

These same sites will take other recyclables and will also accept some residential garbage by the bag, for a fee. Kelleher wants the sites eventually to be set up to take every kind of waste and scrap material, fulfilling the role of the old town dump but with a more environmentally sound approach.

Houston County has a population of about 20,000. La Crescent, a city of 4,000 tucked into the county's northeast corner, is a bedroom community for La Crosse, Wisconsin, located just across the Mississippi River. The rest of the county is quite rural. The county has 11 drop-off sites for recyclable materials, with four more to be added this fall. Curbside collection programs in nine communities collect a wide range of materials, including magazines and high density polyethylene (HDPE) and polyethylene terephthalate (PET) plastic bottles.

Kelleher is especially proud that they have found an experimental market for magazines, which are notoriously difficult to get rid of. He won't reveal details about the market because he's "sworn to secrecy," he says with a laugh. "We did a lot of digging to get that," Kelleher adds.

Tackling pesticide containers

The pesticide container recycling program started by Houston County last spring stands out as a model for rural farming communities everywhere.

After the county began to receive some of the rigid plastic containers used for agriculture chemicals at its unsupervised drop-off sites, county officials asked retailers to accept the used containers, and they agreed. Under existing laws, these containers must be triple-rinsed before being disposed, and it was felt that this could be better enforced if the stores took them back. Store workers glance at the containers for signs of residue or ask farmers whether they've rinsed them. The

county picks up the containers from the seven stores participating in the program.

As of early September, the county had collected more than 3,000 of the containers, which are made of HDPE. Du Pont has agreed to buy the material, and plans to run tests on residues and cleaning potential. If that does not turn out to be a permanent market, Kelleher has another, less lucrative market willing to take the containers.

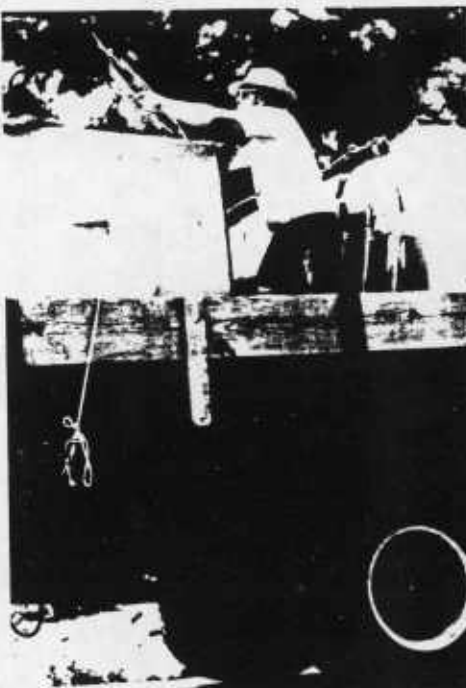
Recycling in tourist heaven

Nestled within the Ozark Mountains, Eureka Springs, Arkansas offers gorgeous scenery combined with delightful architecture and history. Throw in the three annual music festivals and the gigantic statue of Jesus known as "Christ of the Ozarks," and you've got a town of 2,000 permanent residents with an estimated one million tourists passing through every year.

Although Eureka Springs is unusual because of its volume of tourists, many other rural communities face the uphill task of running a recycling program for a small year-round population and high numbers of visitors or seasonal residents.

"Getting the tourists to recycle is a real challenge," says Eureka Springs recycling program manager Bryan Ukena. "When people are on vacation, they don't want to worry about things." It's essential to educate the visitors and make it convenient for them to participate in recycling program, Ukena believes, and the city has begun to work on strategies to accomplish this. So far, tourism-related recycling efforts have primarily been limited to commercial recyclables collection.

For example, the city has been making commercial curbside pickups of glass bottles and corrugated containers for more than a year. In an unusual program for a municipality, used cooking oil from restaurants will soon be collected as well. Ukena notes that many of the town's more than 100 restaurants are so small that the ren-



In Eureka Springs, Arkansas, the city picks up old corrugated containers (1) from businesses. A pilot curbside recycling program collected materials from 100 of the city's 750 households (2).

dering companies that commonly collect this grease are not interested. As a result, the restaurants either dump it out back or put it in with the garbage, where it leaks in the trucks. Either way it's a mess, so the city plans to collect this restaurant grease and take it to its processing center. There it can be accumulated in quantities large enough to attract the rendering companies.

Recycling enjoys strong support among the locals, and the city has been increasing its programs aimed at permanent residents. A drop-off program for numerous materials has operated for two years, and Eureka Springs just concluded a pilot curbside collection program. This project was funded by a state grant and covered fewer than 100 of the community's 750 households. Susan Hubbard, administra-

tive assistant for the recycling program, says the city hopes to win a new state grant to fund citywide curbside collection. The city's steep mountainsides and numerous dead-end streets make curbside route planning quite tricky, Ukena adds.

One of the first communities in Arkansas to teach about recycling in its schools, Eureka Springs employs an educator to conduct programs several times a year for students in kindergarten through sixth grade.

The city's recycling program has an annual budget of \$114,000 and a staff of three full-time and two part-time employees. The program is supported by the city's general fund and an occasional grant, along with the income from the sale of materials. Ukena hopes eventually to bring in additional revenues from other

sources. Ideas being kicked around include having the city serve as a paid consultant for other cities' programs, or having the city collect other communities' materials and handling them at its new processing center.

On the reservation

A new solid waste management program at the Paiute Indian Tribe's Pyramid Lake Reservation in Nevada, north of Reno, includes the recycling of aluminum cans, steel cans, old newspapers and corrugated containers. A small-scale materials recovery facility is being built to handle the materials and should begin operating this winter, says Terry Guggenbuehl, a senior associate with DPRA Inc., a consulting firm based in St. Paul, Minnesota. The Paiute Tribe hired DPRA to develop the comprehensive solid waste management plan for the reservation. This new program is replacing the reservation's 16 open dumps.

Estimated capital costs are \$101,700 for garbage disposal boxes and three small transfer stations, and an additional \$101,500 for recycling facilities. Annual costs are projected at \$35,500 for municipal solid waste collection, \$10,000 for recycling and \$10,320 for public education. It is estimated the tribe will bring in \$9,430 annually from the sale of materials. Using a pickup truck, workers from the tribe will transport the materials once every two weeks to Reno, which is about an hour's drive away.

Glass containers and scrap metals have been left out of the program at this time because of relatively low prices and potential processing headaches (the required sorting by colors or grades, the heavy weight of the materials and the potential for injury).

The tribe is hiring a half-time staff person to conduct the public education program. Plans call for door-to-door visits to talk to nearly all of the tribe's 1,400 residents, over a two-year period.

From here to Infinity

Located just outside Chestertown in the rural, L-shaped part of Maryland east of Chesapeake Bay, Infinity Recycling, Inc. is a two-year-old nonprofit organization that runs curbside collection and drop-off programs. Director Ford Schumann, former president of a local environmental group, started the operation after a restaurant asked if Infinity Recycling could collect the restaurant's bottles. Infinity now picks up bottles from nearly 60 bars and restaurants, selling the glass to an Owens-Brockway plant in Virginia for \$50



In an attempt to deal with the problem of open dumping on the Pyramid Lake Reservation Nevada (1), a small-scale materials processing facility will be built. Infinity Recycling, Chestertown, Maryland, collects glass bottles from nearly 60 bars and restaurants (2).



2

per ton for each of the three separated colors.

The nonprofit group also picks up office paper and certain other materials at about 40 offices and 20 schools. The schools are paid for aluminum cans as a fund-raising project. In addition, Infinity operates 20 drop-off sites for various materials and serves a total of nearly 900 households in three residential curbside collection programs. These services are provided in a five-county area with this fleet of vehicles: two Volkswagen buses; two 8-foot-long trailers (pulled by the buses); two 3/4-quarter-ton pickup trucks; three 16-

foot-long trailers (pulled by the pickups, and four 45-foot-long trailer vans used to ship materials to markets.

Infinity has five full-time paid staff members, although Schumann and his wife work as volunteers. Because of equipment purchases, the organization has never been out of debt, although Schumann foresees a day when it will be. However, some counties are increasing their recycling collection efforts, and Schumann worries that they may squeeze Infinity out of the picture. He believes it would be less expensive and more efficient for the counties if they supported Infinity as a regional provider of recycling services, since it has the established markets. Schumann adds that some county officials may be hesitant about getting involved with Infinity because it does not have a long-term, proven track record.

According to Schumann, there's a nationwide trend of rural communities "relying on governments to provide the whole service." He feels this is misguided, and he asserts that nonprofit organizations and others can also provide valuable recycling services to rural areas.

"Barefoot doctors" in California

Working for Trinity County in northern California, consulting firm Gainer & Associates took the urban block leader concept and adapted it to the mountainous, sparsely populated county. Margaret Gainer, who heads the Arcata, California consulting firm, compares it to the "barefoot doctor" system in China, where some people receive limited health care training so they can help rural villagers with basic medical needs.

Though they aren't barefoot, the "community recycling advocates" in Trinity County talk to groups and individuals about the county's new drop-off sites and other recycling services. Gainer recently trained the first six of these advocates — one in each of the county's largest towns. These volunteers are reimbursed for their travel expenses. The revenues from the sale of recycled materials go to community recreation programs, and this gives the recycling advocates a nice angle to

use when trying to convince residents to participate.

A common problem in mountainous rural areas is that the media are not particularly effective. Radio and television reception is spotty, and the small weekly newspapers don't reach everyone either. "That's the reason we went to a one-on-one approach in Trinity County," Gainer said.

Togetherness in Florida

Faced with a state mandate to reach 30 percent recycling goals by 1994, three rural counties in northern Florida — Baker, Bradford and Union — banded together in 1988 to form the New River Solid Waste Association (NRSWA). Over the past two years, the group has received \$480,000 in state funding. Last year the association hired TIA, a Tampa-based consulting firm, to help plan and implement its recycling program, including public education.

Teresa Ilan, president of TIA, says continued state funding is essential if the counties are to meet the 30 percent goal, since the financial resources of the counties themselves are limited. The combined population of the three counties is about 53,000. Working together should allow the counties to use resources more efficiently and find better markets, Ilan says.

TIA has conducted a waste composition study for the three-county area, along with waste audits of the major commercial, industrial and institutional generators of solid waste. On the public education front, TIA organized a tri-county recycling fair that attracted more than 1,400 people. Monthly recycling drives have been conducted with several local civic groups.

If approved by county officials, NRSWA collection efforts will begin in earnest this fall. These would include: staffed drop-off sites with modern dome-style containers; collection of office paper and corrugated containers from government offices and

Rural recycling council takes off

Various information-sharing projects are planned as the first activities of the new Rural and Small Town Recycling Council, according to Margaret Gainer, co-chair for the group. The council held its first formal meeting August 22 in conjunction with the Ninth National Recycling Congress in San Diego.

The organization is the first technical council under a new National Recycling Coalition program. It is open to all interested individuals and organizations, but only NRC members may vote or serve on the steering committee. Paul Gallimore, of the North Carolina Recycling and Waste Utilization Program, co-chairs the council with Gainer, a consultant from Arcata, California and former executive director of the Arcata Community Recycling Center.

"The goal of the council is to facilitate and increase resource conservation, recycling and composting in rural areas and small towns throughout the U.S." That mission statement was developed and approved by the 30 people attending the inaugural meeting in San Diego.

Several members have commented that those who work with rural recycling must get support from each other, since hardly anyone else understands rural needs and concerns. "We feel left out and are overwhelmed by the urban dominance in our states," said John Harder at the meeting. Harder is solid

waste coordinator for the County of Kauai, Hawaii.

Details of initial council activities will be worked out in upcoming telephone conference-call meetings of steering committee members, Gainer says. However, those attending the first meeting made it clear they are interested in rural recycling information-sharing projects such as a resource guide, other printed reference materials, networking meetings or an information clearinghouse. Strong support also exists for market development activities, leadership and training programs and an NRC "peer match" program.

In a peer match, NRC would provide funding so someone experienced in a certain aspect of rural recycling could visit a program in another part of the country to give advice. NRC has done peer matches in the past, for university recycling programs, for example. The NRC board has not yet established a budget for the council for the coming year. Grant funding through the federal Environmental Protection Agency may become available for NRC peer matches, Gainer adds.

The motivating force behind the creation of the rural recycling council has been Susan Schmidt, associate director and solid waste specialist for the Minneapolis-based Minnesota Project.

The nonprofit organization has the broad mission of keeping rural communities healthy and economically viable, both through direct technical assistance and lobbying for legislation and programs at the state level.

Schmidt, a former NRC board member, organized "networking breakfasts" on rural recycling at the annual NRC congresses in 1987, 1988 and 1989. "Each year it just kept getting bigger and bigger," she says. When the NRC membership committee decided to begin forming technical councils to try to serve members' needs better, rural recycling was an obvious choice for the first one.

At the August council meeting, Schmidt urged fellow members to provide as much help as possible to make the council strong and to advance rural recycling. "Don't wait for it to come to you," she said. "We've got to make it happen ourselves."

To be placed on the mailing list for the Rural and Small Town Recycling Council, write to the National Recycling Coalition, 1101 30th St. NW, Suite 305, Washington, DC 20007. To contact the co-chairs of the council, write to: Margaret Gainer, Gainer & Associates, 928 H St., Arcata, CA 95521; or Paul Gallimore, Route 2, Box 132, Leicester, NC 28748.

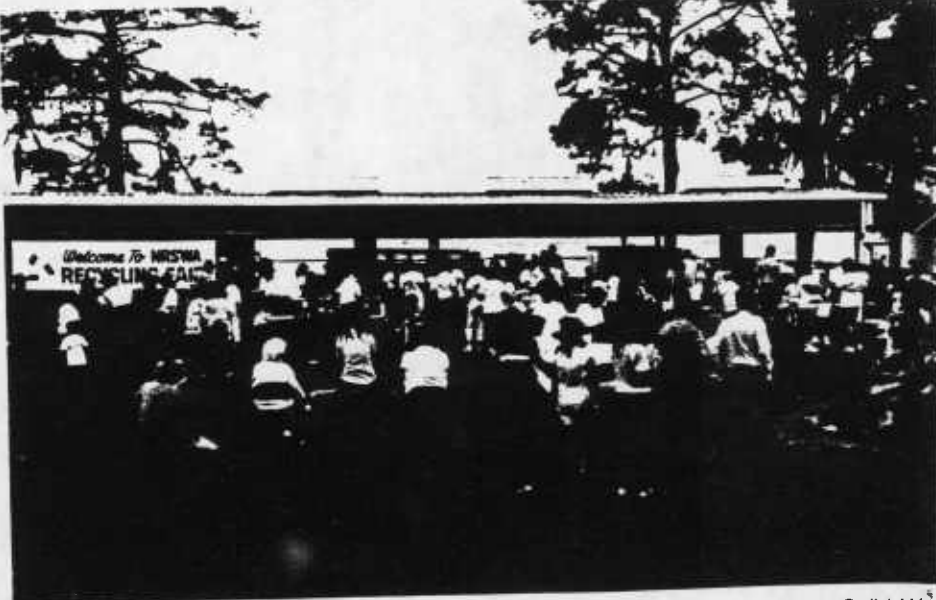
institutions; and collection of tree branches for chipping, with the chips to be given to residents or local governments for landscaping. Residential curbside collection has been proposed for the three largest communities in the tri-county region, but these programs would not start until late 1991 at the earliest.

Innovation in the boonies

While some big-city types may look askance at rural recycling, those who have worked with it realize it presents just as many challenges and opportunities as any other type of recycling, if not more. Since resources are not always abundant, creative thinking has to carry the day, and it usually does.

As Terry Guggenbuehl of DPRA puts it, "The key to success in rural areas is innovation." **RR**

Market development in rural areas, one such innovative approach, is the topic of a new report, "Recycling Entrepreneurship: Creating Local Markets for Recycled Materials." To receive a copy of the 35-page synopsis of the report, send a check



More than 1,400 people attended a recycling fair sponsored by the New River Solid Waste Association in rural northern Florida.

for \$20 to: Publications, Arcata Community Recycling Center, Inc., 1380 Ninth St., Arcata, CA 95521. Also known as the

Rural Waste Enterprise Development Project report, it was prepared for the center by Gainer & Associates.

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(2) 1986 C.C.C. Low Entry

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HOUSE OF DELEGATES

31r2825

No. 907

03

By: Delegate Mitchell (Departmental - State Planning)
Introduced and read first time: February 11, 1983
Assigned to: Appropriations

Committee Report: Favorable with amendments
House action: Adopted
Read second time: March 30, 1983

CHAPTER 636

1 AN ACT concerning

2 Creation of a State Debt - Solid
3 Waste Facilities Loan of 1983

4 FOR the purpose of authorizing the creation of a State Debt in
5 the amount of \$4,000,000, the proceeds to be used to provide
6 State grants or loans to assist in the acquisition, design
7 (including project feasibility studies), construction,
8 equipping, and improvement of certain facilities or systems
9 for the collection, transportation, reduction, processing,
10 reprocessing, reclamation, recycling, separation, and
11 disposal of solid wastes; establishing conditions of
12 eligibility for and limitations on State financial
13 assistance under this Act; defining certain terms;
14 establishing certain priorities for funding; and providing
15 generally for the issue and sale of bonds evidencing the
16 loan.

17 SECTION 1. BE IT ENACTED BY THE GENERAL ASSEMBLY OF
18 MARYLAND, That:

19 (1) The Board of Public Works may borrow money and incur
20 indebtedness on behalf of the State of Maryland through a State
21 loan to be known as the Solid Waste Facilities Loan of 1983 in
22 the aggregate principal amount of \$4,000,000. This loan shall be
23 evidenced by the issuance and sale of State general obligation
24 bonds authorized by a resolution of the Board of Public Works and
25 issued, sold and delivered in accordance with the provisions of
26 §§ 19 to 23 of Article 31 of the Annotated Code of Maryland (1976
27 Replacement Volume and 1982 Supplement, as amended from time to
28 time).

EXPLANATION: CAPITALS INDICATE MATTER ADDED TO EXISTING LAW.

[Brackets] indicate matter deleted from existing law.

Underlining indicates amendments to bill.

~~Strike-out~~ indicates matter stricken from the bill by
amendment or deleted from the law by amendment.

(2) The bonds issued to evidence this loan or installments thereof may be sold as a single issue, or may be consolidated and sold as part of a single issue of bonds under § 2B of Article 31 of the Code.

(3) The actual cash proceeds of the sale of the bonds shall be paid to the Treasurer and shall be first applied to the payment of the expenses of issuing and delivering the bonds unless funds for this purpose are otherwise provided and thereafter shall be credited on the books of the State Comptroller and expended, upon approval by the Board of Public Works, for the following public purposes and subject to the conditions and limitations of this Act, to provide State grants and loans to assist in the acquisition, design (including project feasibility studies), construction, equipping, and improvement of facilities or systems for the collection, disposal, transportation, reduction, separation, reclamation, recycling, processing, and reprocessing of solid wastes.

(4) (a) For purposes of this Act, "~~facility ef--facilities or systems~~" means projects, ~~properties, or systems~~ or properties used or useful in the collection, disposal, transportation, reduction, separation, reclamation, recycling, processing, and reprocessing of solid wastes.

(b) For purposes of this Act, "municipality" has the meaning provided in Natural Resources Article, Section 3-101(g) of the Code, as amended.

(c) For purposes of this Act, "solid wastes" has the meaning provided in Natural Resources Article, Section 3-101(n) of the Code, as amended.

(5) (a) Financial assistance may be provided for facilities of:

(i) The Maryland Environmental Service; or

(ii) Municipalities, if the municipality and the Maryland Environmental Service execute an agreement which assures compliance by the municipality with the purposes and terms of this Act.

(b) (i) State grants or loans for facilities of municipalities or the Maryland Environmental Service may not exceed 87 1/2 percent of the eligible costs. However, the State share of the costs of project ~~feasibility studies~~ may not exceed ~~50 percent of the costs~~. If a ~~facility is intended to serve only a State correctional, health, educational, or other institution or agency~~, State financial assistance under this Act may defray all costs. For facilities of the Maryland Environmental Service not serving only a State institution or agency, the Maryland Environmental Service may execute an agreement with the Board of Public Works to repay all matching dollar amounts from operating revenues of the facility, if the facility ~~is implemented becomes~~ operational.

(ii) State loans extended under this Act shall be:

1. For a term not greater than the useful life of the facility or part of the facility being financed; and

2. Subject to the same rate of interest as the bonds from which proceeds are used to provide the loan.

(c) A federal grant which may be available for the purposes of this Act shall be applied first to the cost of acquisition, design, construction, equipping, or improvement of a facility. The percentage of State financial assistance under this Act shall be applied against the eligible costs remaining after the federal grant is applied.

(d) All recipients of State financial assistance under this Act shall comply with all federal or State laws, regulations, orders, or permit conditions pertaining to air or water quality or waste management. In addition, all facilities ~~of a municipality~~ receiving financial assistance under this Act shall be included in the county solid waste plan required under ~~Section 9-501~~ Subtitle 5 of Title 9 of the Health - Environmental Article of the Code, as amended.

(e) The Maryland Environmental Service, in consultation with the Departments of Health and Mental Hygiene and State Planning, shall annually prepare and submit to the Board of Public Works a statement of priority projects for the ensuing calendar year. High funding priorities shall be for facilities serving statewide or regional needs or which are subject to corrective orders issued by the Secretary of Health and Mental Hygiene.

(f) The cost of a facility eligible for a grant or loan shall include the cost of feasibility studies, plans and specifications, equipment and machinery, rehabilitation, construction, land, easements, and rights of way. In addition, one year's debt service reserve fund requirement for any bonds issued by the Maryland Environmental Service may be considered an eligible cost. Staff or operating costs, other than for start-up, shall not be considered eligible costs.

(6) There is hereby levied and imposed an annual State tax on all assessable property in the State in rate and amount sufficient to pay the principal of and interest on the bonds as and when due and until paid in full, such principal to be discharged within fifteen years of the date of issue of the bonds.

SECTION 2. AND BE IT FURTHER ENACTED, That this Act shall take effect June 1, 1983.

SENATE OF MARYLAND

91r1955

No. 362

B2

By: Senator Levitan (Departmental - State Planning)
Introduced and read first time: January 20, 1989
Assigned to: Budget and Taxation

Committee Report: Favorable with amendments
Senate action: Adopted
Read second time: April 3, 1989

CHAPTER _____

1 AN ACT concerning

2 Creation of a State Debt -
3 Solid Waste Facilities Loan of 1989

4 FOR the purpose of authorizing the creation of a State Debt in
5 the amount of \$4,000,000 the proceeds to be used to provide
6 State grants to assist in the conduct of engineering,
7 financial and legal analyses for, and in the design of
8 certain facilities or systems for the collection, disposal,
9 processing, reclamation, recycling, reduction, reprocessing,
10 and separation of solid wastes; establishing conditions of
11 eligibility for and limitations on the grants; requiring the
12 repayment of reimbursable grants under certain conditions;
13 defining certain terms; establishing certain priorities for
14 funding; and providing generally for the issuance and sale
15 of bonds evidencing the loan.

16 SECTION 1. BE IT ENACTED BY THE GENERAL ASSEMBLY OF
17 MARYLAND, That:

18 (1) The Board of Public Works may borrow money and incur
19 indebtedness on behalf of the State of Maryland through a State
20 loan to be known as the Solid Waste Facilities Loan of 1989 in
21 the total principal amount of \$4,000,000. This loan shall be
22 evidenced by the issuance, sale, and delivery of State general
23 obligation bonds authorized by a resolution of the Board of
24 Public Works and issued, sold, and delivered in accordance with
25 §§ 8-117 through 8-124 of the State Finance and Procurement
26 Article and Article 31, § 22 of the Code.

27 (2) The bonds to evidence this loan or installments of this
28 loan may be sold as a single issue or may be consolidated and

EXPLANATION: CAPITALS INDICATE MATTER ADDED TO EXISTING LAW.
[Brackets] indicate matter deleted from existing law.
Underlining indicates amendments to bill.
~~Strike-out~~ indicates matter stricken from the bill by
amendment or deleted from the law by amendment.

1 sold as part of a single issue of bonds under § 8-122 of the
2 State Finance and Procurement Article.

3 (3) The cash proceeds of the sale of the bonds shall be
4 paid to the Treasurer and first shall be applied to the payment
5 of the expenses of issuing, selling, and delivering the bonds,
6 unless funds for this purpose are otherwise provided, and then
7 shall be credited on the books of the Comptroller and expended,
8 on approval by the Board of Public Works, for the following
9 public purposes, including any applicable architects' and
10 engineers' fees: to provide State grants to assist in the
11 conduct of engineering and financial and legal analyses for, and
12 in the design of solid waste facilities or systems.

13 (4) As used in the Act, the following terms have the
14 meaning indicated:

15 (a) "Facilities or systems" means projects or
16 properties, either existing or proposed, which are used or useful
17 in one or more of the following: the collection, disposal,
18 processing, reclamation, recycling, reduction, reprocessing, and
19 separation of solid wastes.

20 (b) "Municipality" has the meaning stated in Natural
21 Resources Article, Section 3-101(g) of the Code, as amended, and
22 includes the Maryland Environmental Service.

23 (c) "Recycling" has the meaning stated in Environment
24 Article, Section 9-1701(e), as amended.

25 (d) "Solid Waste" has the meaning stated in Natural
26 Resources Article, Section 3-101(n) of the Code, as amended.

27 (5) The expenditure of funds under this Act is subject to
28 the following conditions and limitations:

29 (a) Eligible costs under this subsection (5) include
30 expenses incurred for financial, engineering, and legal analyses
31 necessary or incidental to determining the practicality of a
32 facility or system, and costs of plans, designs, specifications,
33 surveys, investigations, demonstrations, and permit applications.
34 Staff and operating costs of the recipient shall not be
35 considered eligible costs.

36 (b) Except as provided in subsection (5)(c) below, a
37 grant may not exceed 50% of the eligible costs of the work
38 proposed in the grant application.

39 (c) A grant to a municipality for a facility or
40 system that will serve a State institution or agency, that will
41 serve regional needs, or that will incorporate a waste-to-energy
42 or recycling component may cover 100% of the eligible costs of the
43 work proposed.

44 (d) Total grants for a single facility or system may
45 not exceed \$700,000 except that total grants for a facility or

1 system that will serve regional needs or that will incorporate a
2 waste-to-energy or recycling component may not exceed \$1,000,000.

3 (e) All financial assistance provided under this Act
4 shall be in the form of reimbursable grants, ~~in the event that~~
5 ~~funds provided under this Act are used for the engineering,~~
6 ~~financial or legal analyses or design of a facility or system~~
7 ~~which is constructed or implemented, then the recipient of the~~
8 ~~funds shall repay those funds to the State. The amount repaid~~
9 ~~shall be limited to the amount provided under this Act for the~~
10 ~~engineering, financial or legal analyses or design actually~~
11 ~~incorporated into the facility or system which is constructed or~~
12 ~~implemented. If a facility or system is not constructed or~~
13 ~~implemented, then funds provided under this Act shall be deemed a~~
14 ~~grant grants which shall be repaid by the recipients of the~~
15 ~~funds.~~

16 (f) Financial assistance may be provided under this
17 Act only for a facility or system of a municipality, and only if
18 the municipality and the Maryland Environmental Service execute
19 an agreement that is designed to assure compliance by the
20 municipality with the purposes and terms of this Act.

21 (g) Each application for financial assistance under
22 this Act shall be submitted to the Maryland Environmental
23 Service. Copies of the application shall be submitted by the
24 applicant to the Departments of the Environment and State
25 Planning.

26 (h) The Maryland Environmental Service, in
27 consultation with the Departments of the Environment and State
28 Planning, shall periodically prepare and submit to the Board of
29 Public Works a list of pending applications for financial
30 assistance under this Act, together with a recommendation for the
31 priority and amount of funding of each application. High funding
32 priorities shall be assigned to facilities or systems that will
33 serve regional needs, that will incorporate waste-to-energy or
34 recycling components or other innovative or alternate solutions
35 to solid waste management problems, or that are necessary to
36 avoid a critical loss of solid waste disposal capability. The
37 Board of Public Works has final approval authority over all
38 financial assistance provided under this Act.

39 (i) For purposes of procuring goods or services with
40 funds received under this Act, a municipality shall not be deemed
41 to be a unit of State government.

42 (j) Any federal grant that is available for work
43 proposed in an application for financial assistance under this
44 Act shall be applied first to the cost of the proposed work. The
45 percentage of State financial assistance otherwise available
46 under this Act shall be applied against the eligible costs
47 remaining after the federal grant is applied.

48 (k) Each recipient of financial assistance under this
49 Act shall comply with all applicable federal and State laws,

1 regulations, orders, and permit conditions pertaining to air and
2 water quality waste management. —

3 (6) An annual State tax is imposed on all assessable
4 property in the State in rate and amount sufficient to pay the
5 principal of and interest on the bonds, as and when due and until
6 paid in full. The principal shall be discharged within 15 years
7 after the date of issue of the bonds.

8 SECTION 2. AND BE IT FURTHER ENACTED, That this Act shall
9 take effect June 1, 1989.

Approved:

Governor.

President of the Senate.

Speaker of the House of Delegates.

HOUSE OF DELEGATES

6lr2013

No. 621

B2

By: Delegate Mitchell (Departmental - State Planning)
Introduced and read first time: January 22, 1986
Assigned to: Appropriations

Committee Report: Favorable with amendments
House action: Adopted
Read second time: April 1, 1986

CHAPTER

1 AN ACT concerning

2 — Creation of a State Debt -
3 Solid Waste Facilities Loan of 1986

4 FOR the purpose of authorizing the creation of a State Debt in
5 the amount of ~~\$750,000~~ \$500,000, the proceeds to be used to
6 provide State grants and loans to assist in the conduct of
7 engineering and financing financial analyses for, and in the
8 design, construction, enlargement, rehabilitation,
9 improvements improvement, and equipping of certain
10 facilities or systems for the collection, disposal,
11 processing, reclamation, recycling, reduction, reprocessing,
12 and separation of solid wastes; establishing conditions of
13 eligibility for and limitations on the grants and loans;
14 defining certain terms; establishing certain priorities for
15 funding; and providing generally for the issuance and sale
16 of bonds evidencing the loan.

17 SECTION 1. BE IT ENACTED BY THE GENERAL ASSEMBLY OF
18 MARYLAND, That:

19 (1) The Board of Public Works may borrow money and incur
20 indebtedness on behalf of the State of Maryland through a State
21 loan to be known as the Solid Waste Facilities Loan of 1986 in
22 the total principal amount of ~~\$750,000~~ \$500,000. This loan shall
23 be evidenced by the issuance, sale, and delivery of State general
24 obligation bonds authorized by a resolution of the Board of
25 Public Works and issued, sold, and delivered in accordance with
26 §§ 8-117 through 8-124 of the State Finance and Procurement
27 Article and Article 31, § 22 of the Code.

EXPLANATION: CAPITALS INDICATE MATTER ADDED TO EXISTING LAW.
[Brackets] indicate matter deleted from existing law.
Underlining indicates amendments to bill.
Strike-out indicates matter stricken from the bill by
amendment or deleted from the law by amendment.

(2) The bonds to evidence this loan or installments of this loan may be sold as a single issue, or may be consolidated and sold as part of a single issue of bonds under § 8-122 of the State Finance and Procurement Article.

(3) The cash proceeds of the sale of the bonds shall be paid to the Treasurer and first shall be applied to the payment of the expenses of issuing, selling, and delivering the bonds, unless funds for this purpose are otherwise provided, and then shall be credited on the books of the Comptroller and expended, on approval by the Board of Public Works, for the following public purposes, including any applicable architects' and engineers' fees: to provide State grants and loans to assist in the conduct of engineering and financing financial analyses for, and in the design, construction, enlargement, rehabilitation, improvement, and equipping of Solid-Waste-Facilities solid waste facilities or systems.

(4) As used in this Act, the following terms have the meaning indicated:

(a) "Facilities or systems" means projects or properties used or useful in one or more of the following: collection, disposal, processing, reclamation, recycling, reduction, reprocessing, and separation of solid wastes.

(b) "Municipality" has the meaning stated in Natural Resources Article § 3-101(g) of the Code, as amended.

(c) "Solid wastes" has the meaning stated in Natural Resources Article, § 3-101(n) of the Code, as amended.

(5) The expenditure of funds under this Act is subject to the following conditions and limitations:

(a) Not more than \$500,000 may be used to provide State grants to assist in the conduct of engineering and financial analyses for, and in the preliminary design of facilities or systems.

(i) Eligible costs under this subsection (5)(a) include expenses incurred for financial, engineering, and legal analyses necessary or incidental to determining the practicality of a facility or system, and costs of plans, preliminary designs and specifications, surveys, investigations, demonstrations, and permit applications. Staff and operating costs shall not be considered eligible costs.

(ii) Except as provided in subsection (5)(a)(iii) below, a State grant under this subsection (5)(a) may not exceed 50% of the eligible costs of the work proposed in the grant application.

(iii) A State grant to the Maryland Environmental Service for a facility or system that will serve a State correctional, health, educational, or other institution or

1 agency, that will serve regional needs, or that will incorporate
2 a waste-to-energy component may cover 100% of the eligible costs
3 of the work proposed.

4 (iv) Total grants under this subsection (5)(a)
5 for a single facility or system may not exceed \$200,000, except
6 that total grants for a facility or system that will serve
7 regional needs or that will incorporate a waste-to-energy
8 component may not exceed \$350,000.

9 (b) Not more than \$250,000 may be used to provide
10 State grants or loans (or a combination thereof) to assist in the
11 detailed design, construction, enlargement, rehabilitation,
12 improvement, and equipping of facilities or systems.

13 (i) Eligible costs under this subsection (5)(b)
14 include expenses incurred for the detailed design, construction,
15 enlargement, improvement, rehabilitation, or equipping of a
16 facility or system, costs of land, easements, rights-of-way,
17 machinery, and equipment. Staff and operating costs shall not be
18 considered eligible costs.

19 (ii) Except as provided in subsection
20 (5)(b)(iii) below, a State grant or loan under this subsection
21 (5)(b) may not exceed 50% of the eligible costs of the work
22 proposed in the application for financial assistance.

23 (iii) A State grant or loan to the Maryland
24 Environmental Service for a facility or system that will serve a
25 State correctional, health, educational, or other institution or
26 agency, that will serve regional needs, or that will incorporate
27 a waste-to-energy component may cover 100% of the eligible costs
28 of the work proposed.

29 (iv) A State loan under this subsection (5)(b)
30 shall be for a term not greater than the useful life of the
31 facility or system being financed and shall be subject to the
32 same rate of interest as the bonds from which proceeds are used
33 to provide the loan.

34 (v) Financial assistance may be provided under
35 this subsection (5)(b) only for a facility or system that is
36 included in the county solid waste plan required by Subtitle 5 of
37 Title 9 of the Health - Environmental Article of the Code, as
38 amended.

39 (c) Financial assistance may be provided under this
40 Act only for a facility or system of: (i) the Maryland
41 Environmental Service; or (ii) a municipality, if the
42 municipality and the Maryland Environmental Service execute an
43 agreement that is designed to assure compliance by the
44 municipality with the purposes and terms of this Act.

45 (d) Each application for financial assistance under
46 this Act shall be submitted to the Maryland Environmental

1 Service. Copies of the application shall be submitted to the
2 Departments of Health and Mental Hygiene and State Planning.

3 (e) The Maryland Environmental Service, in
4 consultation with the Departments of Health and Mental Hygiene
5 and State Planning, shall periodically prepare and submit to the
6 Board of Public Works a list of pending applications for
7 financial assistance under this Act, together with a
8 recommendation for the priority of funding of each application.
9 High funding priorities shall be assigned to facilities or
10 systems that will serve regional needs, that will incorporate
11 waste-to-energy components or other innovative or alternative
12 solutions to solid waste management problems, or that are
13 necessary to avoid a critical loss of solid waste disposal
14 capability. The Board of Public Works has final approval
15 authority over all financial assistance provided under this Act.

16 (f) Any federal grant that is available for work
17 proposed in an application for financial assistance under this
18 Act shall be applied first to the cost of the proposed work. The
19 percentage of State financial assistance otherwise available
20 under this Act shall be applied against the eligible costs
21 remaining after the federal grant is applied.

22 (g) Each recipient of financial assistance under this
23 Act shall comply with all applicable federal and State laws,
24 regulations, orders, and permit conditions pertaining to air and
25 water quality and waste management.

26 (h) All funds received by the Maryland Environmental
27 Service under this Act shall be expended through the corporate
28 activities of this service.

29 (6) An annual State tax is imposed on all assessable
30 property in the State in rate and amount sufficient to pay the
31 principal of and interest on the bonds, as and when due and until
32 paid in full. The principal shall be discharged within 15 years
33 after the date of issue of the bonds.

34 SECTION 2. AND BE IT FURTHER ENACTED, That this Act shall
35 take effect June 1, 1986.

Approved:

Governor.

Speaker of the House of Delegates.

President of the Senate.

SENATE BILL No. 345
(81r1917)

32

Introduced by Senator Levitan (Departmental - State Planning)

Read and Examined by Proofreader:

Proofreader.

Proofreader.

Sealed with the Great Seal and presented to the Governor,
for his approval this _____ day of _____
at _____ o'clock, _____ M.

President.

CHAPTER _____

1 AN ACT concerning

2 Creation of a State Debt - Solid-Waste-Facilities
3 Recycling Loan of 1988

4 FOR the purpose of authorizing the creation of a State Debt in
5 the amount of ~~\$1,500,000~~ \$500,000, the proceeds to be used
6 to provide State grants and loans to assist in the conduct
7 of engineering and financial analyses for, and in the
8 design, construction, enlargement, rehabilitation,
9 improvement, and equipping of certain facilities or systems
10 for the collection, ~~disposal~~, processing, reclamation,
11 recycling, reduction, reprocessing, and separation of solid
12 wastes; establishing conditions of eligibility for and
13 limitations on the grants and loans; defining certain terms;
14 establishing certain priorities for funding; restricting the
15 use of funds under this Act; and providing generally for the
16 issuance and sale of bonds evidencing the loan.

EXPLANATION: CAPITALS INDICATE MATTER ADDED TO EXISTING LAW.
[Brackets] indicate matter deleted from existing law.
Underlining indicates amendments to bill.
Strike-out indicates matter stricken from the bill by
amendment or deleted from the law by amendment.
Script denotes opposite chamber/conference committee
amendments.

~~(5)(b)(ii)~~ below, a State grant or loan under this subsection (5)(b) may not exceed 50% of the eligible costs of the work proposed in the application for financial assistance.

~~(iii)-(v)--A-State-grant-or-loan-to-the-Maryland Environmental--Service-for-a-facility-or-system-that-will-serve-a State-correctional-,health-,educational-,or-other-institution-or agency--that-will-serve-regional-needs-,or-that-will-incorporate a-waste-to-energy-component-may-cover-100%-of-the-eligible--costs of-the-work-proposed-~~

~~(iv)~~ ~~(vi)~~ ~~(iv)~~ A State loan under this subsection (5)(b) shall be for a term not greater than the useful life of the facility or system being financed and shall be subject to the same rate of interest as the bonds from which proceeds are used to provide the loan.

~~(v)~~ ~~(vii)~~ ~~(v)~~ Financial assistance may be provided under this subsection (5)(b) only for a facility or system that is included in the county solid waste plan required by Subtitle 5 of title Title 9 of the Health--Environmental Environment Article of the Code, as amended.

~~(vi)~~ ~~(viii)~~ ~~(vi)~~ Total grants under this subsection (5)(b) for a single facility or system may not exceed \$1,000,000 \$250,000, except that total grants--or--loans--for--a facility--or--system--that-will-serve-regional-needs-or-that-will incorporate--a--waste-to-energy--component--may--not--exceed \$1,500,000.

(c) Financial assistance may be provided under this Act only for a facility or system of--~~(i)~~--the--Maryland Environmental--Service--or--~~(ii)~~ a municipality, if the municipality and--the--Maryland--Environmental--Service--execute executes an agreement that is designed to assure compliance by the municipality with the purposes and terms of this Act.

(d) Each application for financial assistance under this Act shall be submitted to the Maryland Environmental Service. Copies of the application shall be submitted to the Departments of Health-and--Mental--Hygiene the Environment and State Planning.

(e) The Maryland Environmental Service, in consultation with the Departments of the Environment and State Planning, shall periodically prepare and submit to the Board of Public Works a list of pending applications for financial assistance under this Act, together with a recommendation for the priority of funding of each application. High-funding-priorities shall-be-assigned-to--facilities--or--systems--that--will--serve regional--needs--that-will-incorporate-waste-to-energy-components or-other-innovative--or--alternative--solutions--to--solid--waste management--problems--or--that-are-necessary-to-avoid-a-critical loss-of-solid-waste-disposal-capability. The Board of Public Works has final approval authority over all financial assistance provided under this Act.

(a) Not more than \$500,000 \$100,000 may be used to provide State grants to assist in the conduct of engineering and financial analyses for, and in the preliminary design of facilities or systems.

(i) Eligible costs under this subsection (5)(a) include expenses incurred for financial, engineering, and legal analyses necessary or incidental to determining the practicality of a facility or system, and costs of plans, preliminary designs and specifications, surveys, investigations, demonstrations, and permit applications. Staff and operating costs are not eligible costs.

(ii) Except as provided in subsection (5)(a)(iii) below, a State grant under this subsection (5)(a) may not exceed 80% of the eligible costs of the work proposed in the grant application.

~~(iii) A State grant to the Maryland Environmental Service for a facility or system that will serve a State correctional, health, educational, or other institution or agency, that will serve regional needs, or that will incorporate a waste-to-energy component may cover 100% of the eligible costs of the work proposed.~~

~~(iv) (iii) Total grants under this subsection (5)(a) for a single facility or system may not exceed \$350,000; except that total grants for a facility or system that will serve regional needs or that will incorporate a waste-to-energy component may not exceed \$500,000.~~

(b) Not more than \$1,500,000 \$500,000 may be used to provide State grants or loans (or a combination thereof) to assist in the detailed design, construction, enlargement, rehabilitation, improvement, and equipping of facilities or systems.

(i) Eligible costs under this subsection (5)(b) include expenses incurred for the detailed design, construction, enlargement, improvement, rehabilitation, or equipping of a facility or system, and costs of land, easements, rights-of-way, machinery, and equipment. Staff and operating costs are not eligible costs.

~~(ii) At least \$750,000 of the \$1,500,000 authorized in subsection (5)(b) shall be used for grants to municipalities for the recycling of solid waste including grants to assist in establishing solid waste recycling facilities or systems under paragraph (3) of this section.~~

~~(iii) (ii) A State grant under subsection (5)(b)(iii) this Act may not exceed 80% of the eligible costs of the work proposed in the application for financial assistance.~~

~~(iv) Except (iv) (iii) For the remainder of the funds and except as provided in subsection (5)(b)(iii)~~

SECTION 1. BE IT ENACTED BY THE GENERAL ASSEMBLY OF
MARYLAND, That:

(1) The Board of Public Works may borrow money and incur indebtedness on behalf of the State of Maryland through a State loan to be known as the Solid-Waste-Facilities Recycling Loan of 1988 in the total principal amount of \$17,500,000 \$500,000. This loan shall be evidenced by the issuance, sale, and delivery of State general obligation bonds authorized by a resolution of the Board of Public Works and issued, sold, and delivered in accordance with §§ 8-117 through 8-124 of the State Finance and Procurement Article and Article 31, § 22 of the Code.

(2) The bonds to evidence this loan or installments of this loan may be sold as a single issue, or may be consolidated and sold as part of a single issue of bonds under § 8-122 of the State Finance and Procurement Article.

(3) The cash proceeds of the sale of the bonds shall be paid to the Treasurer and first shall be applied to the payment of the expenses of issuing, selling, and delivering the bonds, unless funds for this purpose are otherwise provided, and then shall be credited on the books of the Comptroller and expended, on approval by the Board of Public Works, for the following public purposes, including any applicable architects' and engineers' fees: to provide State grants and loans to assist in the conduct of engineering and financial analyses for, and in the design, construction, enlargement, rehabilitation, improvement, and equipping of solid-waste recycling facilities or systems.

(4) As used in this Act, the following terms have the meaning indicated:

(a) "Facilities or systems" means projects or properties used or useful in one or more of the following: the collection, disposal, processing, reclamation, recycling, reduction, reprocessing, and separation of solid wastes.

(b) "Municipality" has the meaning stated in Natural Resources Article § 3-101(g) of the Code, as amended.

(c) "Solid wastes" has the meaning stated in Natural Resources Article, § 3-101(n) of the Code, as amended.

(d) (1) "Recycling" means the process by which those materials that would otherwise become solid waste are collected, separated, or processed and are returned to and used in the marketplace in the form of new materials or products.

(2) "Recycling" does not include the process of incineration.

(5) The expenditure of funds under this Act is subject to the following conditions and limitations:

1 (f) Any federal grant that is available for work
2 proposed in an application for financial assistance under this
3 Act shall be applied first to the cost of the proposed work. The
4 percentage of State financial assistance otherwise available
5 under this Act shall be applied against the eligible costs
6 remaining after the federal grant is applied.

7 (g) Each recipient of financial assistance under this
8 Act shall comply with all applicable federal and State laws,
9 regulations, orders, and permit conditions pertaining to air and
10 water quality and waste management.

11 ~~(h) All funds received by the Maryland Environmental~~
12 ~~Service under this Act shall be expended through the corporate~~
13 ~~activities of the service.~~

14 (6) An annual State tax is imposed on all assessable
15 property in the State in rate and amount sufficient to pay the
16 principal of and interest on the bonds, as and when due and until
17 paid in full. The principal shall be discharged within 15 years
18 after the date of issue of the bonds.

19 SECTION 2. AND BE IT FURTHER ENACTED, That nothing in this
20 Act shall be construed to enable Eastern Correctional Institute to
21 receive any portion of funds authorized under this Act.

22 SECTION 2 3. AND BE IT FURTHER ENACTED, That this Act shall
23 take effect June 1, 1988.

Approved:

Governor.

President of the Senate.

Speaker of the House of Delegates.



Focus:

Facts on municipal solid waste

No. 4
October 1990

COMPOSTING

The latest calculations from the U.S. Environmental Protection Agency indicate that the amount of municipal solid waste (MSW) generated annually in the United States is approximately 180 million tons. The safe and efficient management of this ever-increasing quantity calls for creative, multi-pronged approaches. Composting is one approach that is being used to manage some of the organic components in MSW.

Composting is the aerobic (oxygen-dependent) biological process by which plant and other organic materials decompose under controlled conditions. The finished product is a dark-brown substance referred to as stabilized compost or humus. Contrary to popular opinion, this type of compost does not contain enough nutrients to be a fertilizer. However, it is a soil amendment that improves texture and aeration, increases the soil's ability to retain water, decreases erosion, and moderates soil temperature.

For decades, individuals and select municipalities have composted yard waste and some food scraps using a simple technique of wetting and turning the matter periodically until it is transformed into a composted humus product.

Today, this simple method is being augmented by more technologically advanced composting operations to divert an increasing amount of organic materials from landfills and waste-to-energy incinerators. Composting can play a significant role in integrated solid waste management in combination with one or more of the following: source

reduction, recycling, waste-to-energy, and sanitary landfill. The EPA reports that as a result of the composting process, organic wastes can be reduced 50 to 85%.

BACKYARD COMPOSTING

Homeowners with a significant amount of property often set aside an area for a compost pile. Generally, leaves, grass clippings, small brush and vegetable peelings can be composted in backyards. *Citizens must be aware of the health problems associated with composting food wastes in their backyards.* Discarded food may attract rodents and pets; meat and dairy products can breed pathogens that may contaminate the resulting compost product.

Common methods for composting in the backyard include the use of windrows, cylindrical pens made with chicken wire, wooden bins, and perforated steel drums. Windrows are elongated piles turned periodically to expose the material to air. During rainy seasons, windrows may have to be covered to prevent excessive moisture. When compost piles get too wet, air is unable to permeate the material and anaerobic conditions (without oxygen) will result in odor and slower decomposition.

CENTRALIZED YARD WASTE COMPOSTING

Recognizing that, on average, yard waste accounts for 18% of the municipal solid waste stream by weight, several states have imposed bans on its disposal at landfills and waste-to-energy facilities thereby forcing local governments to develop municipal yard waste composting programs to manage

this waste component. According to *BioCycle* magazine, municipal yard waste composting grew from 651 to 986 programs between 1988 and 1989.

It is important to understand the financial obligations associated with a centralized composting program. Costs include: land and site preparation, environmental controls, collection, transportation, processing, and marketing costs. Revenues from the sale of compost are not likely to cover the cost of collecting, transporting, processing and distributing the material. In some cases communities will have to pay to have the compost spread. But in areas where landfill space is scarce or waste-to-energy is employed, composting can represent an appropriate alternative when properly integrated within the community's waste management system.

Rutgers University has identified four technology levels from which communities may choose when implementing a municipal yard waste composting program:

Minimal: The formation of large windrows, 12 feet high by 24 feet wide and up to several hundred feet long, is the least expensive method for composting. The minimal approach calls for the windrows to be turned with a front-end loader as infrequently as once a year. Material is usually suitable for use as compost after one to three years. Although relatively inexpensive and requiring little attention, minimal composting technology calls for a large buffer zone between the facility and neighboring residents due to considerable odor resulting from the infrequent turning.

Low-level: Smaller windrows and more frequent turning limit odor problems with this approach. Windrows are piled 6 feet high by 12-14 feet wide. After the first burst of microbial activity (one month), two piles can be combined. Approximately one year later, after several windrow turnings, piles can be moved off the working area to cure, opening up room for fresh yard waste. This approach turns yard waste into compost in approximately 16-18 months. Low-level technology is less malodorous because the material is turned more frequently; therefore the buffer zone does not have to be as wide.

Intermediate-level: This process is similar to the low-level technology, but weekly turning of the windrows is employed to accelerate decomposition. Compost may be ready in four to six months. Extra processing inherently means an increase in capital and operating costs; and the use of specialized windrow turning machines, rather than front-end loaders, is more expensive. Intermediate technology is attractive for large facilities attempting to divert as much yard waste from landfills as possible.

High-level: Also referred to as *forced aeration*, high-level technology utilizes an automated blower system for temperature and moisture control. Air is blown through a network of perforated plastic pipes under the compost pile. More expensive than windrow turning, high-level technology is most commonly used for co-composting sludge with yard waste or other bulking agents where aeration and temperature control are even more important.

As with recycling, end markets are integral to the success of a municipal composting program. Most programs depend on end uses within a community. Landscapers, parks departments, nurseries, and residents all represent potential users of a quality compost product. Compost can also be blended with soil and used as daily cover at sanitary landfills.

MUNICIPAL SOLID WASTE COMPOSTING

MSW composting provides a means of converting a significant portion of organic materials into a humus-like product. Presently, MSW composting technology targets up to two-thirds of the solid waste stream composed of food, paper and yard wastes. Extensive source separation and pre-processing are required to remove "recyclables" and "noncompostables." Both manual and mechanical separation are needed to remove bulky materials, metals, glass, plastics, and household hazardous wastes from the desirable compost material.

MSW composting is a process which often requires sophisticated technology. "In-vessel" systems consist of large, enclosed chambers in which the composting process is accelerated. Material is digested from two to 28 days (depending in part on the design of the vessel), and curing takes another four weeks. After the initial digestion period, the material is stabilized in piles or windrows. If a conventional, low-level windrow system is used, the composting process could take twice as long.

Marketing MSW compost may be more difficult than yard waste compost because of the greater potential for product contamination. If not properly managed, MSW compost is more likely to be contaminated by heavy metals, household hazardous waste, small-

quantity-generator hazardous wastes, and industrial sludges/process waste. Thorough source separation and pre- and post-processing can help remove some of these contaminants. While it may not always meet state government standards for use on food crops, MSW compost may be used for land reclamation and by landscapers, parks departments, nurseries and residents.

CO-COMPOSTING

Co-composting refers to the simultaneous composting of two or more diverse organic waste streams, one of which is likely to be municipal sewage sludge. Sludge provides moisture and nutrients to the compost while MSW, yard waste, sawdust or wood chips often act as bulking agents, adding porosity and absorbing water. Windrows, in-vessel systems, and static piles using perforated pipes or blowers are all techniques that can be used in co-composting.

To protect against run-off into surface or ground water, co-composting is usually conducted on a concrete pad or in an enclosed area, similar to an in-vessel system.

The resulting product, a valuable soil additive, can be high in nitrogen, phosphorus, potassium, and other nutrients. If the sewage sludges are not heavily contaminated with heavy metals or other toxic substances, they can greatly increase crop yield.

REFERENCES:

- BioCycle, "The State of Garbage in America," Second Annual Solid Waste Management Survey, March 1990, p. 48.
 - Chertow, Marian, *Garbage Solution: A Public Official's Guide to Recycling and Alternative Solid Waste Management Technologies*, National Resource Recovery Association, United States Conference of Mayors, Washington, D.C. 1989.
 - EPA, *Decision-Maker's Guide to Solid Waste Management*, Office of Solid Waste, Washington, D.C., EPA/530-SW-89-072. November 1989.
 - Strom, Peter, and Melvin S. Finstein, *Leaf Composting Manual for New Jersey Municipalities*, Rutgers, The State University, Department of Environmental Science, Cook College and the N.J. Agricultural Experiment Station, May 1989.
 - Taylor, Alison, and Richard Kashmanian, *Yard Waste Composting: A Study of Eight Programs*, EPA, Office of Policy, Planning and Evaluation, Office of Solid Waste and Emergency Response, EPA/530-SW-89-038, April, 1989.
- The KAB Solid Waste Task Force extends a special thanks to the following people for providing comments on earlier drafts of this document:
- Charles Cannon, Executive Vice President, The Solid Waste Composting Council,
 - Richard Kashmanian, Ph.D., Senior Economist, Office of Policy, Planning and Evaluation, U.S. Environmental Protection Agency.

Governor's Advisory Council on Recycling

February 4, 1991

Minutes

FEB 27 1991

Members In Attendance:

MD-Y3-R-31-2/4/2/4/91
Dr. Harvey Alter, CHAIRMAN, general public
Mr. James Pittman, Maryland Department of the Environment (MDE)
(representing Mr. Richard W. Collins)
Mr. Michael Gagliardo, Northeast Maryland Waste Disposal Authority
Mr. Lawrence Hayward, packaging industry
Mr. Paul Hollinger, packaging industry
Mr. Michael Taylor, Maryland Environmental Service
(representing Mr. George Perdikakis)
The Honorable Joan B. Pitkin, Maryland House of Delegates
Mr. Thomas W. Redmond, Sr., recycling industry
Mr. Marcus S. Marx, solid waste industry (representing Mr. George Hudnet)
Mr. James Katcef, food and beverage industry
The Honorable Regina J. McNeill, Maryland Municipal League
Mr. Lenny D. Minutillo, Jr., food and beverage industry
Mr. Barry F. Scher, Maryland Food Dealers Association
Mr. John Moser, (representing Senator Gerald Winegrad, Maryland State Senate)

Members Absent:

Dr. Dan K. Morhaim, general public
Dr. Michael Pelczar, environmental community (whose term is up and who asked
not be reappointed)

Others in Attendance:

Mr. Glenn Dodson, MDE
Mr. Harry Benson, MDE
Mr. Jonathan Phillips, Prince George's County Office of Recycling

The meeting was convened by Dr. Alter at 9:00 a.m. All members introduced themselves and the minutes for September, October, November, and December 1990 were approved.

Dr. Alter stated that he has met with Secretary Perciasepe and Mr. Gary Thorpe. He suggested to Secretary Perciasepe that the Council should inform the General Assembly in detail what the Council and the State are doing with respect to recycling. Dr. Alter stated that the conversations with Mr. Thorpe and Secretary Perciasepe were very constructive. The Governor would like to do some things but within the present financial constraints on

the State. Some things that the Council has already suggested, i.e., guide books, are working toward such goals. Dr. Alter also spoke to Secretary Perciasepe about replacing vacant positions on the Council. This was also discussed with the Governor's appointment office.

Dr. Alter passed around guide books produced by Virginia Tech for municipal solid waste planning, law, public involvement, combustion, recycling, and landfills. Dr. Alter felt that these documents were very good, especially since they were developed by a University and not a regulatory agency. The cost was of the order of \$50,000. The cost to Maryland, if we use this same university, may be lower because the basic information would already be developed and would then just need to be adapted to the Maryland situation.

Dr. Alter attended a meeting on integrated solid waste management in Utah. There were people from various states at the meeting and from the discussion, it was apparent that Maryland is doing very well in its recycling effort and is "headed" in the right direction. Maryland may not be the best, but is in the forefront. When the report from this meeting becomes available, it will be provided to the Council members.

Mr. Benson presented information concerning some projects currently being implemented by the Office of Waste Minimization and Recycling (OWMR). The program is in the process of reviewing all county recycling plans. MDE has received 22 plans. The Office has issued 90-day notices to the two jurisdictions that are late with their plans. Five plans have been reviewed and letters were issued approving three and conditionally approving two. The plans appear to be very good, which is due in part to the continual volley of information exchanged between the counties and MDE.

MDE has received an EPA grant for consulting services. OWMR is using the grant for two projects, a generic promotions campaign, and a regional recycling study on the Eastern Shore. The promotions campaign will consist of billboard ads, how-to material, press releases, etc., which then will be edited by each jurisdiction. The regional recycling study will examine ways in which the Eastern Shore can use regional recycling. Mr. Benson stated that MDE was looking into developing a newsletter and would like the members to suggest any ways for funding this project. The Newsprint Recycling Board convened its first meeting on January 22, 1991. The topic for its next meeting is supply of recyclable newsprint.

Dr. Alter referred to a report that stated an approximate two million metric ton capacity in North America for recycled newspaper. In 1991 and 1992, an additional four million U.S. tons will be added.

Comments on the Interim Report on Bans, Taxes and Deposits

The Council reviewed the subject Draft Interim Report, which contained changes from the last meeting. Mr. Hollinger suggested that Table 1 be changed so that the percent of discards appears as the percent of packaging. This change will be addressed by Dr. Alter. Mr. Hollinger read an article stating that the McDonald's move to stop using plastics will negatively affect the drive to recycle plastics. He stated that the move by McDonald's was political, not environmental.

Mr. Hollinger stated that the jury was still out on the benefits of returnable containers. Dr. Alter cited several reports that determined having a system, which includes a return policy and a recycling policy, was more expensive than a recycling only policy. Mr. Hollinger stated that information on refillable systems is old and that there is no new information. He stated that bottle bills in the 1970's were political answers to litter. Ms. Pitkin referred to page nine and stated that despite the fact that industry has fought to overturn the existing laws, their efforts have failed. Dr. Alter agreed and will add this to the report. Mr. Katcef added that the refillable system has been studied and he will be pleased to take anyone out to his firm and demonstrate what it would take to go to a completely returnable system. He stated that the cost of this would be prohibitive. It was agreed upon to add some verbiage to address Mr. Hollinger's statements without making any judgements. The Council agreed to have the changes added to the report and to send the report to the appropriate parties.

Comments on the Annual Report

Dr. Alter wants to make it clear to the reader that this is the first of several Annual Reports and that the Council will address many more issues in the future. Some suggestions for the Annual Report were addressed. All suggestions being minor, the Report will be forwarded to the appropriate people.

Education

Ms. Pitkin reported that the majority of students on the K-12 level are receiving environmental education. The Department of Education is providing money to the school systems to implement programs. She stated that more emphasis must be put on actually doing recycling in schools. Ms. Pitkin referenced an article from Talbot County in which the school board refused to allow a trailer on campus for newspaper recycling. Mr. Benson added, though not familiar with this specific instance, that he has encountered resistance in similar situations because the schools did not want the trailers to be open for anyone to enter at any time. Ms. Pitkin continued and stated that an environmental by-law was passed in 1989 that set the standard for minimum environmental education. However, she reported that Mr. Heath stated that the emphasis should be on doing recycling, not learning about recycling. Anne

Arundel County has a school program that includes foamed polystyrene, aluminum, white paper, and cardboard. They plan to have all schools recycling by the end of the year. Ms. Pitkin's notes and recommendations are attached. Mr. Phillips added that 60 schools will be recycling by September in Prince George's County. Approximately 15-20% of the institutional waste stream originates from schools. They are concentrating on a holistic approach and emphasizing the removal of as much material as possible. Each program will be unique and thus expensive in the beginning. Prince George's County has two people who go out to schools and set up programs.

Prince George's County is currently recycling in 25 schools (aluminum, paper, some compost, and one school wants to do everything). The school system sets up the haulers for themselves and most of these are volunteers. Dr. Alter suggested that in the future, school systems must be included in county-wide programs.

Dr. Alter has been investigating the development of a post-graduate program in something related to solid waste and recycling. To show that this program can work, Dean Grodsky at the University of Maryland, must demonstrate that he can get 25-30 students. Dr. Alter does not see this as a problem. An Interim Report on education will be submitted in for discussion at the next meeting of the Council.

Funding

Copies of an MDE publication, "Funding County Recycling Programs," were distributed. Dr. Alter stated that as a continuation of previous discussions on what the State may want to raise new revenues for in the recycling field, the following recycling-related projects might be considered: (1) The federal government has passed the National Environmental Education Act; Maryland should start positioning itself to receive forthcoming grants and suggested providing seed money. (2) There might also be seed money for K-12 to interface with the upcoming county programs but the money should be directed narrowly so that it will not be used for other purposes. (3) Money might also be given to the University of Maryland to seed the graduate program and expand it to other disciplines. (4) Funds for the marginal costs of training county coordinators. (5) Funds should be included for MDE to run some of these programs, especially to increase the training of county coordinators. All of these programs could be provided by placing a minor surcharge on municipal solid waste (approximately \$.30 per ton). Because the charge is small, there may be little resistance. There was discussion about the ways to manage these funds and also some belief among the members that such funds will and should be permanent. The Council will formulate a report with recommendations on funding in the near future.

New Business

The Council will address topics in the Executive Order that were not completely addressed as well as revisiting and updating old issues. Task Forces were formulated to address three issues from the Executive Order; Economics and Financing, State Procurement Policies for Purchasing Recyclable Products, and Determining the Programs Necessary to Reduce the Amount of Solid Waste Generated for Disposal.

Old Business

Mr. Moser, who arrived after the discussion on the Interim Report on Bans, etc., and speaking on behalf of Senator Winegrad, stated that it was the Senator's opinion that the issues in the Interim Report were not fully addressed and ". . .that the Report was a chambers of commerce report." The Council agreed to submit the report and, if it was requested by the members, the issues may be introduced again. It was pointed out that Senator Winegrad was present at very few meetings but still had opportunities to raise his concerns earlier by mail or in person. Several Council members expressed their regrets, to Mr. Moser, that the Council did not have the advice and participation of Senator Winegrad more often.

The meeting adjourned at noon. The next meeting will be held at 9:00 a.m. on March 4, 1991 at the Maryland Municipal League.



Focus:

Facts on municipal solid waste

No. 5
February 1991

THE ONGOING NEED FOR SANITARY LANDFILLS

Sanitary landfills are essential to our nation's ability to safely manage municipal solid waste. This "Focus" is dedicated to improving understanding of sanitary landfill operations and the importance of siting new facilities in resolving the solid waste disposal dilemma.

An integrated approach to waste management is most often cited as the best way to resolve our nation's waste disposal problems. The following menu of options—source reduction, recycling, composting, waste-to-energy, and sanitary landfilling—provides communities with a flexible strategy to manage their waste that can be tailored to local needs.

Many people have chosen to view this menu in hierarchical form, with source reduction and recycling as the most desirable options, advocating or implying that these options can manage the majority of the 180 million tons of municipal solid waste (MSW) generated annually in the United States. However, reversing this hierarchy by putting landfilling first offers a clearer picture of the way waste is and will be managed for many more years.

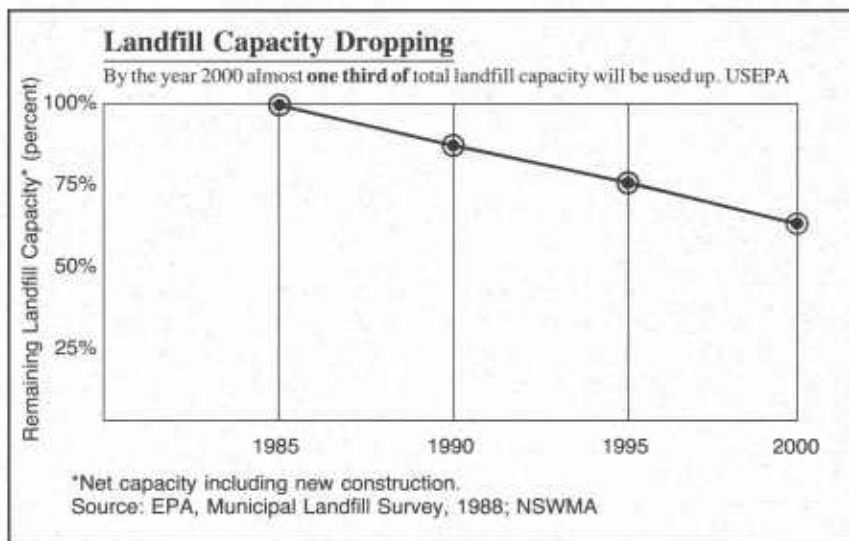
Presently, 13% of MSW is recovered for recycling and/or composting, 14% is combusted and the remaining 73% is disposed of in landfills. The latest projections by the U.S. Environmental Protection

Agency predict that by 1995, 20-28% of waste will be recovered for recycling/composting, and 22.5% will be burned in waste-to-energy incinerators. As population increases, the amount of MSW generated on an annual basis is predicted to increase from about 180 to 200 million tons during the same period. Using these projected figures, it is estimated that even with this increased recycling/composting and incineration, approximately 100 million tons of waste will need to be disposed of in landfills in 1995.

Our reliance, then, on safe, efficient sanitary landfills will continue. Yet, the number and capacity of existing landfills is rapidly

declining. At the present rate, by the year 2000 one-third of existing and planned capacity will be exhausted.

This loss will be the result of stricter federal regulations causing older facilities to shut down, the closure of landfills which have reached capacity, and the inability of communities to overcome opposition to siting new facilities. In many instances, older landfills did not safeguard the environment and have caused significant pollution. The closure of these facilities over the past several years should be viewed as a benefit, even though it has left us with a severe capacity shortage in many regions of the country.



The Resource Conservation and Recovery Act (RCRA), originally passed by Congress in 1976, classifies landfills and regulates what type of waste they may receive. In 1979, EPA issued the first federal standards regulating the design and operation of municipal solid waste landfills. Since that time, states have passed their own increasingly stringent standards. Currently, EPA is revising existing regulations that were promulgated under Subtitle D of RCRA. Although not yet finalized, they will be considerably more rigorous and will address criteria regarding location, design, operation, closure and post-closure care, and financial assurance. Specifically, groundwater monitoring, liners and corrective action will be required.

Today, only some 10% of existing landfills meet these stringent criteria. This indicates that an enormous number of sites will be forced to close their gates or modernize.

Local, county or regional governments own nearly 60% of today's landfills. Privately owned landfills account for only 14% of the total number of sites, yet account for nearly half of existing disposal capacity.

Development of a modern landfill can take five or more years from the time of site selection to the completion of engineering designs, permit applications, public hearings, and the issuance of permits. These facilities are expensive. The National Solid Wastes Management Association estimates that a double lined 100-acre landfill with a 20-year operating life, and all monitoring and closure expenses factored in, costs approximately \$87 million.

Sanitary landfills are carefully engineered facilities, not open pits

into which waste is dumped. Site suitability is determined by many factors, including careful analysis of the surface and subsurface geology, hydrology, the nature of adjacent environments, access routes, and proximity to waste generation sources. It requires rigid analysis of groundwater sources and flow direction, along with soil composition and site engineering. Only after a potential site passes the stringent legal, environmental and engineering criteria in all these areas can work begin.

The bottom and sides of a landfill are usually lined with layers of compacted clay and/or impermeable plastic liners to insure that any liquid entering the excavation is retained. All water from rain or snow that passes through the waste is collected by a network of drains, which direct this liquid (leachate) to a recovery point for treatment before release.

Within a typical landfill site, the area for waste disposal is divided into a series of individual cells. In daily disposal activities, only a small portion of the site (the working face) is used, minimizing exposure to wind and rain. At the conclusion of each day's activities, a layer of earth (daily cover) is spread across the compacted waste to minimize odor and prevent insect and vermin problems. Daily cover may consist of soil, foam, or sheets of synthetic material. Increasingly, yard waste is being diverted from landfills for composting and the end product is used as a cover material. Each cell is filled, capped off with a layer of clay and earth, and seeded with native grasses according to an approved closure plan.

As waste decomposes in the ground it produces methane gas, which can be explosive, and carbon dioxide.

When cells are capped off, venting systems are used to control methane and prevent it from diffusing underground. Equipment can be installed to collect, dry and treat the gas for use as a commercial fuel. It may also be burned in a controlled fashion at the landfill site to prevent emission into the atmosphere.

When landfills reach capacity they are sealed and covered with a final cap of clay and dirt. Control of water infiltration, which creates leachate, is a major consideration in landfill cover design. Proposed federal regulations may require post closure monitoring of groundwater for thirty years.

Capped landfills are often landscaped to blend in with their surroundings, or are specially developed to provide a recreational asset to the community such as a golf course, park, or ski slope. Due to the potential settling of the fill over time, completed landfills are generally not used as building sites.

Sanitary landfilling will always serve as a base component in a waste management system to handle materials that are not recyclable or for which there is a limited market, the residue from the recycling process, or ash from incineration. The challenge is to insure that all facilities are built with the best available technology and professionally maintained to offer maximum protection of the environment and public health.

References:

- "Landfill Capacity in the Year 2000," NSWMA.
- "Characterization of Municipal Solid Waste in the U.S.: 1990 Update" U.S. Environmental Protection Agency.

State initiatives in commercial recycling



by Meg Lynch
Resource Recycling

A survey of nine state recycling programs found a wide variety of activities in support of recycling in the commercial sector.

It should come as no great surprise that many of the states experiencing acute shortages of disposal space are also the states with legislatively mandated recycling goals and aggressive state programs to encourage waste reduction, recycling and composting.

When states look at prolonging the lives of their ever-diminishing landfills, they examine ways to divert the bulkiest portions of the waste stream — commercial wastes, construction and demolition debris, and yard waste. When these components of the waste stream are removed, significant savings in landfill space can be achieved.

In addition, anyone who supports waste reduction and recycling goals of 50 to 60 percent realizes that these goals cannot be met without targeting the sizable portion of the waste stream represented by commercially generated recyclables.

A milk run through several states found varying levels of activity to aid and abet commercial sector recycling.

Rhode Island: the carrot and the stick

Rhode Island's recycling legislation requires all businesses to recover office paper, old corrugated containers and newspaper, and glass, steel, aluminum and plastic (HDPE and PET) food and beverage containers. To encourage compliance with this recycling mandate, the state's only landfill can turn away garbage trucks that have loads with more than 20 percent of these commercially generated recyclables; fines may also be levied for violations.

Two state agencies regulate and enforce the state's mandatory commercial recycling: the Department of Environmental Management (DEM) and the Solid Waste Management Corporation (SWMC). In general, DEM is responsible for planning and implementation of recycling efforts (including commercial), and SWMC for paying for these efforts. SWMC

has administrative responsibility for waste disposal and waste recovery at the landfill and the materials recovery facility (which processes materials collected through municipal recycling programs); both facilities are located in the Town of Johnston. Because Rhode Island has no counties, SWMC provides services commonly offered by counties in other states.

Department of Environmental Management. Businesses with more than 100 employees must submit a recycling plan to DEM; in addition, annual reports must be filed assessing the progress of the business toward meeting its recycling goals. According to Carole Bell, principal environmental planner for DEM with responsibility for commercial recycling efforts, the department's role is basically a regulatory one of "riding herd on the commercial recycling plans."

To assist businesses in the development of their recycling plans, the department offers an impressive range of technical assistance. In addition to the required forms and step-by-step instructions on completing them, DEM provides a handbook to companies with information on how to set up a recycling program and the markets available for recyclable materials. An office paper recycling guide is also available.

The first set of recycling plans were filed in June 1989 from businesses with 500 or more employees. Businesses with 250-499 employees filed their plans in December 1989, and businesses with 100-249 employees filed in June 1990. Although DEM is still rounding up a few recalcitrant businesses, according to Bell, compliance in general has been quite good. DEM is in the process of revising its regulations to extend these planning requirements to companies with 50-99 employees.

Although a detailed weight/volume waste generation and composition study is not required, businesses must conduct a general evaluation of the waste they

amount the jackpot reached was \$4,000, Tullock says.

Employing the same techniques as state lotteries, Rockford used the increasing jackpots as publicity opportunities. Tullock says the cash for trash program was somewhat successful in exposing the public to curbside recycling, but it had little effect on increasing volumes.

After 18 months, Rockford's recycling lottery was ended in December 1987 due to its high cost and because a \$50,000 state grant ran out, Tullock says. The total cost of the cash for trash program was \$268,000. This resulted in a cost to the city of \$468 for every ton of recyclables diverted from the landfill during that time, according to Tullock. He believes that was quite excessive.

Rockford has since moved to a more traditional curbside recycling operation. Last November its garbage contractor, Laidlaw, began providing curbside recycling collection to about 50,000 households with the company's standard blue container system. The program collects newspaper, magazines, glass bottles, aluminum cans, tin cans, and PET and HDPE bottles. In the first month, 575 tons of materials were collected, Tullock says, and participation is much higher than ever before. Providing residents with containers was the key, he says.

As far as the future, Tullock has been experimenting with pay-by-the-pound garbage collection and plans to introduce it in Rockford within the next four years. He feels that this type of variable fee system would provide another significant boost to curbside recycling.

San Jose, California: big city leader

Four years ago, San Jose boasted the largest curbside recycling program in the country. It has since been overtaken by a handful of other programs. San Jose is still a trailblazer, but has begun to focus on integrated waste management, and how curbside recycling will fit into that in the future.

On the heels of its successful Santa Rosa program, Empire Waste Management won a contract with the City of San Jose for a 20,000-household pilot program in 1985. As usual, residents who were provided storage containers registered a higher participation rate. The container program was expanded to 60,000 homes in 1986, shortly before Waste Management acquired Empire. In 1987, the program went citywide and currently serves all 166,000 single-family households in the city, says Gary Liss, environ-

mental program manager for the city's Integrated Waste Management Program.

Using the same three-bin system as Santa Rosa, San Jose collects the same materials, with one exception. At the first of the year, San Jose added used motor oil. A rack under the truck, formerly used for extra bins, has been converted to hold jugs of oil. The city provides free containers for used oil on request. These are similar to HDPE plastic milk jugs, but have a screw-top lid.

San Jose's curbside recycling collection effort brings in 2,500 tons of materials a month. City officials and residents have embraced the program. But in an effort to divert even more waste, major changes are in the offing.

The current curbside recycling contract ends in June 1993, says Liss, and city officials have begun to design the new contract. At the least, Liss expects to add mixed waste paper and mixed plastics. Another possibility for 1993 is to move to a wet-dry collection system similar to those operating in some European cities. It would incorporate collection of dry recyclables, food waste and yard waste. "We're seriously looking at that [a wet-dry

system] right now," says Liss. The city has been offering curbside collection of mixed paper for 21,000 homes in a pilot program, and will continue this through 1993. Waste Management's existing trucks would not be able to handle volumes of citywide mixed paper collection, Liss adds.

Curbside and more

The most obvious thread running through these profiles is that volumes and participation in curbside recycling programs zip upwards when storage containers are provided. Another lesson is that setbacks are not fatal, and in fact can be overcome rather quickly.

It should also be noted that nearly all the municipal recycling programs featured here include other major elements, in addition to curbside recycling. Chief among them is yard waste composting, which can rack up impressive waste stream diversion rates. As illustrated by San Jose's forward-looking effort, a multi-faceted approach — which includes curbside recycling as a major component — will be the name of the game through the 1990s, and on past the millennium. **RR**

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generate as part of their recycling plans.

The recycling plans and annual reports have provided a wealth of data that, Bell says, "if we had more staff, we'd love to quantify."

Bell thinks DEM's regulatory approach to commercial recycling is actually a benefit to businesses. "The planning process drives businesses with recycling plans to improve them and drives those without recycling plans to set them up," she says. She emphasizes that the state's commercial recycling regulations should not be viewed as punitive, but rather that the regulations give DEM the opportunity to provide technical assistance to companies and work with them to reduce their waste and their expenses. "Most businesses are happy" once they see what can be achieved, she says.

For the purpose of the state's mandatory recycling requirements, state agencies fall under the definition of commercial recycling. When the state's new fiscal year begins in July, the recycling program at state offices will be revised significantly. State agencies now collect mixed paper and aluminum cans only; after July, they will be required to collect the same materials that businesses do.

Solid Waste Management Corporation. In contrast to DEM's regulatory role, the Solid Waste Management Corporation's responsibilities are primarily enforcement-related. SWMC's job is to enforce, at the landfill face, the restriction on disposal of truck loads of garbage with more than 20 percent of commercially generated recyclables.

According to Ed Connelly, recycling program manager for the Solid Waste Management Corporation, SWMC wants to take a more active role in commercial recycling by working with businesses with fewer than 50 employees.

SWMC has applied to the U.S. Environmental Protection Agency for funds to provide technical assistance programs for these small businesses. The agency an-

ticipates a two-pronged approach to enhancing recycling in small businesses. SWMC would respond to requests for assistance from businesses interested in starting recycling programs. And, using the existing recycling infrastructure, the agency would work with recycling coordinators in each community to establish regional recycling cooperatives or collection schemes for small businesses, for example, tenants in small malls. Agency staff will provide businesses with waste audit assistance as well.

The proposal to EPA would allow SWMC to hire two part-time technical assistance staff to supplement current staff of one part-time person with intern support.

The state's material recovery facility (MRF), for which the Solid Waste Management Corp. is responsible, serves as the "market of last resort" for commercially generated recyclables. Because markets for these commercial recyclables are strong in Rhode Island, the MRF has not had to serve this function.

According to Connelly, SWMC is studying the ability of its materials recovery facilities to accept commercially generated office paper when the state's second MRF is expected to open in the summer of 1992 at Quonset Point.

However, office paper processing at the second MRF may be nothing more than wishful thinking unless the proposed facility can overcome significant obstacles: opposition from local residents, difficulty in obtaining title to the property, and uncertainty about where the money's going to come from.

Maine: where's the money?

The State of Maine assists recycling efforts in the commercial sector in two major ways: financial assistance and technical assistance.

Financial assistance. An investment tax credit for 30 percent of the purchase price of recycling equipment is avail-

able to businesses. The Office of Waste Reduction and Recycling in the Maine Waste Management Agency determines whether the recycling equipment meets the eligibility criteria and provides the state's Bureau of Taxation with certification for a particular recycling equipment purchase.

About 8-10 certification applications totaling about \$4 million in recycling equipment have been received thus far, according to Jody Harris, director of the waste reduction and recycling office; the investment tax credits for these purchases would total \$1.2 million.

Eligible equipment can range in size from recycling containers for office paper collection to deinking equipment for paper companies. Among the equipment to receive certification have been reverse vending machines to facilitate beverage container recovery at grocery stores and paving equipment to recover and reuse asphalt.

Because the program seeks to encourage waste reduction as well as recycling, an investment tax credit could be authorized if a company redesigns its manufacturing process and purchases new equipment that will reduce its generation of waste.

The state also provides financial assistance through a small loan fund to help businesses start recycling programs and to develop markets for commercially generated recyclables. The loan program is funded through the state's solid waste revenues, which are generated from landfill surcharges on special wastes and from fees on white goods, tires, batteries, and mattresses.

Although the program has the potential of loaning \$400,000, only \$100,000 is available because the solid waste fund is not generating as much money as was anticipated. Individual loan amounts are limited to \$50,000. No loans have been approved yet, because program officials have been waiting to see how much

money would be available from the solid waste fund.

Technical assistance. Maine waste reduction and recycling staff help businesses set up recycling systems. In a program called WasteCap, modeled after a similar program in Vermont, volunteers from businesses with recycling programs already in place make site visits to companies and conduct basic waste audits. Volunteers are screened and trained by waste reduction and recycling staff.

A unique feature of Maine's efforts in commercial recycling will be phased in beginning in July 1991. All companies with 15 or more employees at one site will be required to separate office paper and old corrugated containers for recycling. The requirements go into effect for large employers (with 200 or more employees) in July 1991. Employers with 50 to 199 employees must comply beginning in July 1992; in July 1993, employers with 15 to 49 employees will be covered.

Although the law mandating business recycling provided for no enforcement penalties, the Office of Waste Reduction and Recycling is "looking for voluntary compliance from businesses, with techni-

cal and financial assistance supplied by the staff of our agency," says Harris. She anticipates that staff will assist businesses by linking them with brokers and end users for their recyclable materials and by educating employees through training workshops and manuals.

What's in the future for commercial sector recycling efforts by the state? Harris says there has been "some talk of expanding the loan program," but she thinks it's unlikely given the current economic climate.

Massachusetts: room to grow

When all of Massachusetts' major solid waste facilities renew their solid waste permits this July, they will be required to explain how they expect to meet a 25 percent waste reduction and recycling goal.

Cory DeGeus, director of recycling for the Massachusetts Department of Environmental Protection (DEP), expects that "half that amount will be achieved through working with waste haulers and their commercial customers." He adds, "from a regulatory standpoint, that's about the most we can do at this time."

Right now, DEP is working with industry

associations and chambers of commerce to promote the use of commercial waste audits and encourage businesses to negotiate waste hauling contracts to emphasize recycling efforts. "In many cases the economic incentives are already sufficient for businesses to recover materials for recycling," says DeGeus.

Rather than stress recycling in the commercial sector, the department has made a strategic decision to help the state's 350 municipalities get their recycling efforts on the ground and assist them in developing joint requests for proposals for material recovery or recyclables sorting facilities.

DEP will be working with the new state administration to enact mandatory recycling legislation that would apply to both residential and commercial waste generators.

Vermont: small is beautiful

"Because we're small, we can do neat things" in waste reduction and recycling says Paul Markowitz, chief of the recycling section in the Vermont Agency of Natural Resources.

The State of Vermont's source reduction grants are the primary avenue

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through which "neat things" in commercial recycling activities are funded. Grants are supporting projects on industrial waste audits, hospital wastes, small business waste audits, button cell battery recycling, recycling in the schools, and waste exchanges.

The Vermont Agency of Natural Resources (ANR) provides financial assistance to WasteCap, a program coordinated by the Associated Industries of Vermont (AIV) to help industries reduce and recycle the waste they generate. The program uses volunteers from other businesses, matching volunteers' technical expertise with the type of industry that wants an audit. The team can look at hazardous as well as solid wastes.

Unless requested, a representative from the state does not accompany the waste auditors as they conduct the walk-through audit. In large part, this is because if a violation is spotted by a state employee (perhaps with regard to hazardous wastes), the violation must be reported. Also, "we feel businesses are more receptive to advice from their peers," says ANR's Markowitz. Markowitz feels the key to the program's success is that, as a peer

match program, its approach is based on self-help, not regulation.

With a \$25,000 ANR source reduction grant, AIV has hired a half-time person, Connie Leach (Markowitz's predecessor at ANR), to coordinate the program. One of Leach's other projects involves linking up with Maine and New Hampshire to develop a computer database on waste reduction and recycling. AIV plans to apply for funds for the project from the U.S. Environmental Protection Agency, Region 1.

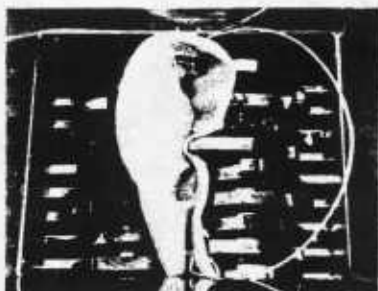
As part of their solid waste plans, solid waste districts must study the generation of unregulated hazardous wastes by small quantity generators (less than 220 pounds per month). ANR is working with these small quantity generators to survey the types of hazardous wastes that are generated and where they're going.

Other source reduction grants from ANR to encourage recycling in the commercial sector include the following projects:

- Studying and implementing a source reduction and recycling program in the surgical services wing of a hospital; a

manual will be developed and distributed to all Vermont hospitals.

- Implementing a collection and processing system to reclaim scrap gypsum wallboard.
- Designing and installing a system that would eliminate over 60 percent of a company's concrete waste.
- Providing funds to collect button-cell batteries at about 200 stores where they are sold. The batteries will be sent to Mercury Refining in Albany, New York for processing.
- Studying and implementing hazardous waste reduction and proper management of hazardous wastes in Vermont schools; a training manual will be developed and distributed to all Vermont schools.
- Evaluating and implementing a cooperative in one county to manage hazardous wastes generated by small businesses; a business plan and guidance document will be produced.
- Examining the feasibility of establishing a computerized waste exchange in the state.
- Purchasing and installing a hazardous waste reduction system to recover



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In addition, ANR has provided source reduction grant monies to the Source Reduction Resource Center at the University of Vermont. Working with the state solid waste districts and the Associated Industries of Vermont, students conduct waste audits for small businesses to reduce and

recycle solid and unregulated hazardous wastes in one county.

As part of its continuing efforts to assist recycling in the commercial sector, ANR's recycling section plans to conduct industry-specific and business-specific seminars on waste reduction and recycling. Among the groups targeted are ski associations, hotel/motel associations,

commercial and institutional food service providers, universities, hospitals, service stations and photo finishing labs.

Iowa: getting there

To comply with solid waste comprehensive planning requirements, Iowa cities and counties must study the type of wastes they generate and who generates

Rhode Island success stories



In its receiving area, a Rhode Island business collects polystyrene packaging and reuses the packaging when it ships out its own products.



The State of Rhode Island requires all businesses with 100 or more employees to submit recycling plans that not only assess the wastes they generate in the course of doing business, but also detail how those wastes will be reduced and recovered for recycling. Subsequent annual reports from businesses will detail their progress toward achieving their waste reduction and recycling goals.

Although systematic waste composition evaluations are not required when plans are submitted, businesses must complete a rudimentary analysis of the volumes of wastes generated throughout their facilities.

Through this planning and reporting process, some businesses have realized sizable savings in disposal costs:

■ **Stanley Bostich, Inc.** (manufactures staples, staplers, nails and nail

guns) recovers office paper, computer paper, old corrugated containers, pallets, metals, and corn cob grindings (which are composted). A 60 percent reduction in the volume of waste going to the landfill reduced the firm's annual solid waste disposal costs by approximately 40 percent, saving the company over \$50,000.

■ **Brown & Sharpe Manufacturing Co.** (manufactures precision metrology products) recovers office paper, computer paper, old corrugated containers, newspapers and magazines, wood waste, polystyrene peanuts and coolant. In the first year of the program, the company captured 52.7 percent of its waste for a 50 percent reduction in its annual disposal costs, which dropped from \$66,000 to \$33,820.

■ **Hasbro, Inc.** (manufactures toys)

recovers office paper, computer paper, old corrugated containers, chipboard, newspaper and polystyrene food service items. The company has reduced its waste by 85 percent and saved more than \$26,000 in annual disposal costs.

■ **Stop and Shop Supermarket Company** (grocery store chain), through its recovery of old corrugated containers from its supermarkets and computer paper from its office, has reduced its waste stream by 41 percent and saved \$108,000 in one year.

After the state amends its regulations, businesses with 50-99 employees will be required to comply with the same commercial recycling planning procedures requirements required by larger Rhode Island businesses.

them. Based on these data, jurisdictions will prepare 20-year plans for how they will handle their solid wastes within the state's waste management hierarchy.

Iowa recently modified its comprehensive planning rules to require jurisdictions to describe what they are doing to achieve waste reduction and recycling goals, including a detailed implementation plan.

Through the use of waste reduction and recycling techniques, Iowa cities and counties must reduce their landfilled wastes 25 percent by 1994 and 50 percent by 2000. Commercially generated wastes can account for a significant portion of the municipal solid waste; in some Iowa communities, 60 to 70 percent of the wastes are generated from commercial and industrial sources.

Going after recyclables in the commercial sector can make it easier to achieve these waste reduction and recycling goals. In fact, some communities with high commercial waste generation rates are, in effect, forced to tackle commercial recyclables; without the sizable amount of recyclables generated by the commercial sector, communities would be unable to

meet the 25 percent goal, let alone 50 percent.

In one Iowa community, 40 percent of its municipal solid waste is generated by one industry, probably 90 percent of which is mixed waste paper and old corrugated containers (OCC). According to Bob Meddaugh, state recycling coordinator with the Department of Natural Resources (DNR), if 75 percent of that industry's OCC is recovered for recycling, that community would be able to achieve its 25 percent waste reduction and recycling goal with the savings from only one business. Plus the business would realize impressive savings in avoided waste disposal charges.

Another community, in the Waterloo-Cedar Falls area, produces 240,000 tons per year of municipal solid waste, about 43 percent of which is foundry sand generated by one business. Area planners are working hard to find a market for the foundry sand. If a market can be identified and secured, not only would the community be well on its way to meeting the state's waste reduction and recycling goals, but it would be a boon to other

communities in the state with foundries as well.

Although primarily aimed at large generators of hazardous wastes with more than 100 employees, a new program from DNR called Waste Reduction Assistance Program (WRAP) can help businesses determine the best ways to reduce and recycle their solid wastes as well. (The Iowa Waste Reduction Center assists businesses with fewer than 200 employees.)

From a pool of 12 retired engineers with various industry backgrounds, DNR selects a team to conduct a site visit of a particular business or industry. The engineers identify recycling opportunities and changes in procedures to reduce the generation of wastes. The end result is a company that reduces and recovers its wastes, rather than paying to dispose of them.

The program is in its infancy — only 16 site visits have been completed since June 1990, and DNR is receiving significant positive feedback about it. An unique aspect of the WRAP project, and perhaps its most important feature, is an on-site

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workshop that follows the report to help businesses internalize an ongoing pollution prevention program.

By targeting commercially generated wastes, communities can get "a little more bang for their buck," says Meddaugh, and take a giant step toward reaching their waste reduction and recycling goals.

Minnesota: staying at home

In Minnesota, one of the nation's leaders in residential recycling efforts, there's little happening at the state level in support of commercial recycling.

"We've informed the counties that they are going to need more than residential recycling" to meet the goal of recycling 25 percent of the waste stream by 1993, says Barb Thoman, a principal planner in the state's Office of Waste Management. But there's virtually no activity from state government to spur commercial recycling.

The seven-county Metropolitan Council, a regional oversight commission in the Twin Cities area that includes solid waste within its purview, has awarded a number of grants in support of commercial recycling. In addition, there have been a couple of efforts by the Chamber of Com-

merce in the Twin Cities area to encourage a cooperative approach to commercial recycling among small businesses.

This level of inactivity may change, however. A legislative initiative introduced in this session would require that the "opportunity to recycle" legislation that currently pertains to residences be amended to embrace small businesses as well.

Pennsylvania: information and education

Under Pennsylvania's recycling law, Act 101 of 1988, commercial and institutional establishments (as well as municipal establishments) in towns of 5,000 or more people are required to recover leaf waste, aluminum cans, high grade office paper and old corrugated containers.

Vince Tarentino, market development coordinator in the Pennsylvania Department of Environmental Resources' Bureau of Waste Management, reports that a great deal of effort has been taken to make it easy for commercial and institutional establishments to obtain technical assistance on recycling.

"The Pennsylvania Department of En-

vironmental Resources works with the Pennsylvania Chamber of Business and Industry and its members to inform businesses of their responsibilities under Act 101," Tarentino says. "DER representatives have been featured speakers at local chamber of commerce meetings and conferences to explain the role of business in recycling and to provide technical support for recycling program development." Last year, recycling seminars were held in 11 Pennsylvania cities. This year the Pennsylvania Chamber of Business and Industry will hold a major conference in Harrisburg entitled 'How to Minimize Your Waste and Recycle,' at which several DER officials will share their knowledge of waste reduction and recycling practices in the workplace."

The DER offers this level of service to any business or industry trade association that wishes to inform its members about recycling. Commercial recycling presentations have been delivered at meetings specifically targeted to members of manufacturers and health associations, municipal and economic development councils and waste hauler organizations, among others.

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DER has developed guidelines and fact sheets for recycling at multi-family dwellings; commercial, institutional and municipal establishments; schools and universities; and community activities.

Other forms of technical assistance by PA DER in support of commercial recycling efforts include:

- Participation in the Northeast Industrial Waste Exchange to match scrap generators with scrap users.
- Publication of a markets directory with nearly 700 recycling operations that accept recyclable materials.
- Distribution of PA DER recycling publications as well as ones from EPA, recycling trade associations and businesses involved in recycling.
- Provision of a toll-free recycling hotline where residents and business people alike can obtain answers to their recycling questions.
- Provision of economic support for the Pennsylvania Resources Council's computer bulletin board with information on recycling markets, equipment, education and legislation.

In addition, a cabinet-level task force is charged with carrying out the governor's

market development strategy. The strategy, which will affect markets for recyclable materials generated from all sectors, has four primary objectives: expanding the capacity of Pennsylvania industries to use recyclable materials; encouraging research into new uses for recyclable materials; improving the system for collecting, processing and transporting recyclable materials; and providing education and technical assistance on recycling.

New Jersey: testing the water

Under New Jersey's mandatory recycling legislation, counties were charged with developing recycling plans and strategies to collect and market sufficient recyclables to achieve a 25 percent reduction in their solid waste. Under a new initiative, the state has adopted a goal of 60 percent recycling by 1995.

As in other states, there's a long-standing tradition in New Jersey of collecting old corrugated containers from commercial establishments and at transfer stations. "A very significant portion of OCC is already recovered from mixed loads at transfer stations," says Guy Watson of New Jersey's Office of Recycling,

where he's chief of the Bureau of Technical Assistance and Review.

The recycling office is preparing requests for proposals that will go directly to counties to establish pilot programs; among them is one that will establish a model program to expand commercial recycling for businesses. The project will look at marketing and will try to establish collection and storage procedures for commercially generated recyclables.

Another pilot project will examine the efficiencies of collecting commercially generated plastics, especially plastic film such as dry cleaning bags and shrink wrap. The study will attempt to answer the question of how to integrate plastics collection into existing recycling collection programs.

"Other than this, quite frankly, what we're looking at is how counties will approach commercially generated recyclables in their new 60 percent plans," says Watson. Under New Jersey's latest initiative, county recycling plans will need to pursue commercial waste recycling with new vigor or they'll never achieve the new goal of 60 percent waste reduction by 1995. The Office of Recycling is preparing a guidance document so counties

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will know the criteria against which their plans will be evaluated.

Many businesses are constrained from preparing materials for recycling because they simply lack the extra space to accumulate recyclables. In an attempt to prevent this problem from occurring in the future, new construction or new developments of 1,000 square feet or more must incorporate an area for recycling into a structure's design.

For the most part, state government has not been too involved in facilitating commercial recycling, in large part due to its emphasis on recycling in the residential area and also because of a strong private sector involvement in commercial waste recovery.

With the new 60 percent recycling goal, however, there will be heightened monitoring at disposal sites and generators of large amounts of commercial recyclables will be identified. Local recycling coordinators will then work with a generator's hauler to help a generator set up a recycling program.

If recycling services are not available for a commercial generator, local governments are required to step in to provide this service. Even though curbside recy-

cling is pervasive in New Jersey, most localities have retained their drop-off facilities; these drop-off sites could be made available to businesses for their commercially generated materials.

North Carolina: good intentions, but little money

North Carolina's comprehensive solid waste legislation, modeled after Florida's, establishes a waste reduction and recycling goal of 25 percent by 1993. The legislation mandates annual reporting and the initiation of recycling programs for "designated local governments."

"Designated local governments" are essentially the local governments that hold state permits for solid waste management facilities; this definition embraces 90 of North Carolina's 100 counties and 12 of its larger municipalities. In addition, the law specifically mandates county solid waste management plans.

Although there are no specific requirements for commercial recycling, commercial waste recovery would be "pulled in under the state recycling goal," according to Mary Beth Powell, a solid waste policy analyst with the state Office of Waste Reduction.

Because each North Carolina county is responsible for achieving the 25 percent recycling goal, "county recycling coordinators are allowed, and even encouraged, to go beyond residential" to reach their recycling goals, says Powell. For example, a county recycling coordinator could document the recovery of old corrugated containers at grocery stores and retail establishments and count that recovery toward the county recycling goal.

In January, the governor moved the waste reduction and recycling responsibilities out of the Division of Solid Waste Management, a regulatory agency, and established a separate Office of Waste Reduction. Solid waste and hazardous waste responsibilities in the waste reduction office were organized into two arms: an industrial section, for industrially generated solid and hazardous wastes; and a municipal section, for solid and hazardous wastes generated from the residential, commercial and institutional sectors.

Obviously, the new waste reduction office is still in the process of defining its institutional mission and determining a long-term game plan. "We will definitely be looking at the commercial sector," says Powell. Even though the legislature has appropriated little money to support waste reduction and recycling, Powell is heartened by recycling's progress in the state. "Because there's no money, people are being very creative at the local level. We are making progress very, very quickly."

Do we find any common themes in this sampling of state activities in commercial recycling? More than themes, we seem to see a diversity that can be best expressed in dualities: adequately funded versus little funding; states active versus states limiting themselves to residential recycling; regulation and enforcement versus technical assistance; government action versus peer pressure.

Not surprisingly, the big push to aid and abet recycling in the commercial sector is coming from states in the Eastern part of the U.S. where the costs of landfill disposal are significantly higher than in other parts of the country.

What is a surprise is that the state with the highest recycling goal—New Jersey's 60 percent by 1995—does not have a program specifically to target commercial wastes. By relying on private haulers already actively collecting commercial recyclables, the state may find it comes up short in its efforts to meet its lofty recycling goal.



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